APPLICATIONS
Management Consulting Ltd.

Regional Service Integration Study

Water Treatment & Transmission
Wastewater Treatment & Transmission
Solid Waste Collection & Disposal

Final Report - December 2000

Prepared for:

Alberta Capital Region Governance Review

Prepared jointly with:

Stantec

REPORT SUMMARY

This is a summary of the main report for this project. It is intended to provide an overview of feasible service integration alternatives in each of the following service areas:

- Water treatment and transmission.
- Wastewater treatment and transmission.
- Solid waste collection and disposal.

Water Treatment and Transmission

To a great extent, this service has been integrated within the defined study region and in some instances, beyond the region. It is estimated that 95% of water treatment and transmission are currently integrated at the regional and sub-regional levels respectively.

Epcor[1] treats and delivers water to specific points for purchase by other municipalities or water commissions in the Capital Region. Water is delivered through the region via connections to Epcor through one of several regional Water Commissions. Only a few communities in the Alberta Capital Region have their own municipal water treatment facilities: Devon, Bon Accord, Warburg, New Sarepta, and rural residents not connected to the regional system.[2]

Issues:

- Requires the continued cooperation of the water users group to effectively negotiate water rates for users of the regional system.
- There is a wide variation in end user rates across the region.
- Demand management continues to be a local municipal issue, with some regional influence through the water users group.
- Regional optimization of water transmission, storage and local distribution is done as issues arise.
- Environmental regulations will be a driver of future changes to the system.
- Expertise of some smaller centres may be a concern without effective succession planning.

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1 On May 1, 1996, the Water Branch of the City of Edmonton became incorporated as Aqualta Inc. In October 1999, the name was changed to Epcor Waters Service Inc.

2 Bon Accord will be connected to the regional water system through the Capital Regional Northeast Water Service Commission in 2001.

103-01891/

Option 1: Status Quo

Epcor continues to own and operate water treatment and distribution within the City of Edmonton and provide water to customers in the region. The Water Users Group continues to negotiate water rates as a single buyer of water from Epcor. Those municipalities currently operating independently would continue to do so until expansion of the water treatment and distribution system was both desirable and economically feasible.

The current system is providing a good level of service at a reasonable cost. It provides a high level of local autonomy in both rate setting and control over the local distribution and storage components of the system.

Option 2: Sell All Systems to a Private Owner/Operator

All water systems would be sold to one owner/operator, a private sector corporation. This would include: Epcor's water treatment, distribution and storage facilities, regional water lines and local transmission. With its current ownership configuration, it has been assumed that the private sector corporation would not be Epcor. The operation and maintenance of the system would be the responsibility of the private owner. In addition the private owner/operator would make decisions regarding any expansion or upgrading of the system.

It is expected that this option would offer improvements in overall system efficiency and the coordination of future system planning.

Option 3: Equity Investment in a Regional Water Corporation

Municipalities would exchange all water systems for equity to a new private Regional Water Corporation that would be a common regional operator/service provider. This would include: the water treatment, transmission, distribution and storage facilities held by Epcor (City of Edmonton), regional water lines and local transmission, storage and distribution systems. This private operator/service provider would be owned by the municipalities participating in the option. This private corporation would have its own staff and operate independently of the operations of the municipal shareholders.

As with Option 2, it is expected that this option would offer improvements in overall system efficiency and the coordination of future system planning.

Option 4: Regional Contract Operator/Water Authority

All municipalities would retain the ownership and control of their local transmission, storage and distribution systems. However, a common contractor/operator would be hired to operate and maintain the entire system. This arrangement could be

facilitated by the creation of a Regional Water Authority (however it is not essential that this formal step be taken). The operating maintenance costs for the system would be allocated to the users of the system upon a pre-agreed upon basis. However, decisions regarding future investments in expanding service would be in the control of each individual municipality.

It is expected that this option would some efficiency improvements and maintain a relatively high level of local control over water services.

Wastewater Treatment and Transmission

As with water, the wastewater treatment and transmission system in the region is currently integrated to a great extent. It is estimated that 90% of wastewater treatment and transmission are currently integrated at the sub-regional level.

At the sub-regional level, both the City of Edmonton and the Alberta Capital Region Wastewater Commission (ACRWC) provide wastewater treatment service. Each has a wastewater treatment plant and transmission system. These two systems are connected and share services through "swap" agreements that help to rationalize the infrastructure in the region and create operating efficiencies. At the local level, municipalities are responsible for sewer collection within their own boundaries.

Issues:

- Cooperation between Edmonton and the ACRWC will both continue and will need to be expanded. This will involve the re-negotiation of existing agreements into a single master agreement and the development of a process by which operational and system planning can be enhanced.
- It is anticipated that both the ACRWC and Edmonton will need additional treatment capacity within the 20 year analysis timeframe.
- Service standards vary significantly across the region.
- There is a wide variation in end user rates across the region.
- Long-term planning and coordination of regional wastewater treatment and transmission systems at the regional and sub-regional level is done as issues arise.
- Wastewater expertise of some smaller communities in the Capital Region may be a concern without succession planning.
- Environmental regulations will be a driver of future changes in the system.

Option 1: Status Quo

The status quo is actively evolving. Both the City of Edmonton and the Alberta Capital Region Wastewater Commission are undertaking an initiative to improve their ability to cooperate and coordinate the planning and efficient delivery of wastewater services to their customers. Edmonton and the ACRWC would remain autonomous,[3] however, further cooperation between the two systems is required to efficiently provide treatment capacity to the users connected to each system. All members of the ACRWC continue to pay the same rate for wastewater transmission and treatment services (postage stamp rate). Expansion of the regional wastewater treatment and transmission system would occur when economically feasible/as desired by municipalities (e.g. additional wastewater treatment capacity to service ACRWC members and Edmonton at the ACRWC plant, transmission line connecting NE Edmonton). Local collection of wastewater would remain the responsibility of each municipality.

The current system is providing a good level of service at a reasonable cost. It provides a high level of local autonomy in both rate setting and control over the local distribution and storage components of the system.

Option 2: Sell All Systems to a Private Owner/Operator

Sell all wastewater systems, including: City of Edmonton, ACRWC and local municipal operated systems within the Capital Region - to one common owner, private sector corporation. The operation and maintenance of the system would be the responsibility of the private owner. In addition, the private owner/operator would make decisions regarding any expansions or upgrading of the system.

It is expected that this option would offer the most significant improvements in overall system efficiency and the coordination of future system planning.

Option 3: Equity Investment in a Regional Water Corporation

A new private Regional Wastewater Corporation would be a common regional operator/service provider. Municipalities would exchange all wastewater systems, including: City of Edmonton and ACRWC trunks and treatment facilities, and local municipal operated systems in the Capital Region - to one common owner, private sector corporation. This private operator/service provider would be owned by the municipalities agreeing to participate in the option. Each municipality would receive shares in the operation in exchange for the value of its infrastructure. This private corporation would have its own staff and operate independently of the operations of the municipal shareholders.

[3] The City of Edmonton will continue to be treated as a customer of the Commission, and not as a member.

It is expected that this option would offer some improvements in overall system efficiency and the coordination of future system planning.

Option 4: Regional Contract Operator/Water Authority

All municipalities would retain the ownership and control of their local transmission and collection systems. However, a common contractor/operator would be hired to operate and maintain the entire system. This arrangement could be facilitated by the creation of a Regional Wastewater Authority (however it is not essential that this formal step be taken). The operating maintenance costs for the system would be allocated to the users of the system upon a pre-agreed upon basis. However, decisions regarding future investments in expanding service would be in the control of each individual municipality.

It is expected that this option would some efficiency improvements and maintain a relatively high level of local control over water services.

Solid Waste Collection and Disposal

Solid waste collection and disposal, as well as recycling programs within the Alberta Capital Region, are generally offered at the municipal level. However some integration of services and facilities has already been implemented.

Solid waste disposal has been integrated on a "subregional" basis primarily at four landfills throughout the Capital Region. Waste collection is generally carried out at the municipal level, however, some shared contracts between adjacent municipalities are being considered or are currently in place.

The City of Edmonton has developed a fully integrated Waste Management Centre that is expected to serve the waste needs of Edmontonians for the next several decades. The services and facilities at the Edmonton Waste Management Centre incorporate the concepts of recycling, composting and limited use of landfill facilities. In addition to the Co-composter, Edmonton's Waste Management Centre has recently opened the Materials Recovery Facility (MRF). The MRF is a 64,000 square foot recycling plant for recycling mixed materials.

Solid waste diversion rates (including recyclables and compostables) reported throughout the Capital Region range from 20% to 40%. Many neighbouring municipalities share recycling depots and related services.

Issues:

- The most important issue potentially facing the Capital Region is the establishment of additional landfill capacity (see options 2 through 4). The

current waste disposal facilities within the Capital Region will serve the region sufficiently for the next 10 to 15 years. Ongoing waste minimization initiatives that are anticipated will result in ever decreasing annual waste volumes per capita.

- There are a number of recycling facilities and initiatives in the region which are currently run by various municipalities. There may be an opportunity to expand the effectiveness and efficiency of these facilities through delivering these services on a cost shared basis either regionally or sub-regionally (see option 5).
- Solid waste collection is increasingly being provided by a single private sector operator in the region. This has created some concern regarding the ability of market forces to ensure that collection costs remain economical. Option 6 outlines an approach to collectively negotiating future collection agreements either regionally or sub-regionally.
- Finally, there are a number of potential activities that could be undertaken at a regional or sub-regional level. This could be accomplished through the creation of a Regional Solid Waste Authority of sub-regional commissions (see Options 7 & 8).

Option 1: Status Quo

Solid waste disposal in the Capital Region generally consists of landfilling of wastes. Most municipalities in the Capital Region have incorporated waste minimization initiatives in their solid waste disposal program, both to reduce the amount of waste taken to landfills thus extending the life of the landfill and to address public demands for recycling opportunities. In a significant departure from the historical approach to disposing of solid waste, the City of Edmonton developed a $100 million integrated Waste Management Centre. This facility is expected to significantly reduce the volume of waste material generated from Edmonton that is ultimately sent to a landfill. Compost facilities are also provided within a number of the municipalities in the Region. Household hazardous waste and other wastes and recyclable materials are collected at the two Eco-stations in Edmonton. Many of the municipalities offer additional services such as toxic waste round ups, large item pick up, yard waste collection and Christmas tree pick-up.

The current system is providing a good level of service in the region with a high degree of local autonomy. The most significant deficiency is the lack of a coordinated approach to dealing with the landfill capacity issue and sub-regional recycling facilities.

Option 2: Disposal to existing landfill(s) outside of the Capital Region

Existing landfills located outside of the Capital Region are considered as key disposal sites. The most realistic option is likely the Ryley landfill (located 70 km east of Edmonton), as it has substantial capacity over the long-term. Drayton Valley Regional Landfill may also be a viable option. The Ryley Landfill has a total remaining capacity of about 43 million tonnes, and currently takes in 125,000 to 175,000 tonnes/ year. The projected remaining life on the Ryley landfill exceeds 60 years.

This option takes advantage of existing landfill capacity, but will not likely be the most economical landfill disposal option because of the relatively high transportation costs.

Option 3: New landfill(s) within the Capital Region

New regional landfill(s) would be sited within the Capital Region. Because of the difficulty in siting a landfill, it may be most practical to consider a single facility. However, from an operational efficiency perspective, siting several "sub-regional" facilities could result in significant savings in transportation costs. This would complement the landfill capacity at Ryley with a site in the west, south or northwest part of the Capital Region, in order to reduce transportation costs for Capital Region residents.

This option provides the greatest service efficiencies for the waste disposal component of the system.

Option 4: Edmonton Co-Composter Use and Expansion

Waste from the region, outside of Edmonton, would be directed to the Co-composter. At this time, only waste from Edmonton is sent to the Co-composter. During peak periods (summer months), it is reported that the existing facility is operating at capacity. As a result, any significant diversion of waste from other municipalities in the region to the co-composter would require an expansion of the existing facility, or more likely, the development of a similar facility elsewhere in the region. The location of the facility should be considered strategically to minimize transportation costs (e.g. West or Southwest area of the Capital Region would be considered). Over the longer term, if waste from outside Edmonton is not sent to the Co-composter, Edmonton will likely need to develop a new facility to handle its own waste volumes.

This option offers the greatest potential for minimizing the volume of waste that is ultimately landfilled. However, at least in the short and medium term, it will be the highest cost alternative.

Option 5: Regionalization of recycle depots/compost facilities/eco-stations

Recycle depots are generally located in urban centres and at landfills. Some additional formalized "sharing of facilities" could be implemented on a regional or sub-regional basis in order that costs and revenues are shared between neighbouring municipalities. This would include the Eco-stations currently located in Edmonton. Greater coordination of facility development and cost sharing associated with these facilities and services could both improve the collection of related materials, reduce the cost of the services and related infrastructure, and more fairly allocate these costs across the region.

This option would both improve the fairness of bearing the costs of providing these services as well as likely improve future planning and coordination of facility development. This would also encourage further sound waste management practices by residents.

Option 6: Collective negotiation of waste collection agreements

The negotiation of combined collection and disposal services on a regional or sub-regional basis may help to balance the power of a large regional service provider. The key advantage of a collective approach to negotiation will be the sharing of information and an ability to identify realistic alternatives to the major supplier. A collective approach to bargaining could result in the establishment of a greater public presence in the collection and disposal of waste in the absence of sufficient competition in market place.

Collection costs could be reduced for those municipalities participating in the collective negotiating process.

Option 7: Regional Solid Waste Authority

This option involves the creation of a Regional Solid Waste Authority. This could be the result of creating a new organization, or expanding the mandate and altering the membership of Capital Region Waste Minimization Advisory Committee (CRWMAC) to give the organization the necessary mandate to take on regional solid waste issues. The specific activities that could be undertaken by this organization include: tracking landfill capacity and planning for additional capacity as required; tracking waste minimization activities in the region (as these also

impact landfill capacity requirements) and co-ordinate the planning of specialized regional and sub-regional services.

This option offers the greatest opportunity to deal with the planning and coordination of regional solid waste issues, including the siting of future landfill capacity.

Option 8: Sub-Regional Solid Waste Commission

This option involves the creation of one or more sub-regional Solid Waste Commissions whose mandate would be to address waste disposal options, landfilling and waste minimization initiatives in recycling and composting. These commissions could be developed from the existing regional landfill authorities with an increase of scope and authority. The commissions could own property and potentially reduce their environmental liabilities.

This option offers an improvement over the status quo in creating an opportunity to deal with the planning and coordination of regional solid waste issues, including the siting of future landfill capacity.

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1 BACKGROUND

1.1 Study Purpose

As stated in the Terms of Reference, the purpose of the study is to provide:

> *"Analysis and advice to support decisions about the best way to deliver certain services within the Alberta Capital Region."*

The project objectives are as follows:

- Document the current service provided and project it into the long term.
- Identify feasible service delivery options.
- Evaluate these options (including the status quo) in both the short term and long term utilizing the nine Service Integration Goals.
- Identify and evaluate the transition process, including impacts on municipal costs and staffing levels.
- Prepare a report that is both comprehensive and accessible for review by elected officials, registered stakeholders and the public at large.

Service Areas

The service areas to be evaluated in this study, defined as Group A, include:

- Water treatment and transmission.
- Wastewater treatment and transmission.
- Solid waste collection and disposal.

Service Integration Goals

The basis to be utilized for evaluating the various service delivery options is defined in Attachment 1 of the Request For Proposals. These Service Integration Goals are as follows:

- Citizens will receive best value for their dollars.
- Citizens will benefit from service and facility enhancements in the long term.
- Volunteerism will continue to be supported and encouraged.
- Citizens will know who is responsible for service delivery and concerns.

- Sustainable benefit to the region will be a priority.
- Service delivery will be more cost effective after restructuring.
- No new level of government will be created.
- Community identity will be maintained.

1.2 Organization of the Report

Following this introductory section, this proposal is organized as follows:

- **Approach to the Analysis**: Provides an overview of methodological issues and the approach taken in completing the analysis.
- **Water Treatment & Transmission**: Provides a description of the existing water treatment and transmission system and issues in the Capital Region. Four alternatives have been identified for consideration, and each are analyzed and evaluated.
- **Wastewater Treatment & Transmission**: Provides a description of the existing wastewater treatment and transmission system and issues in the Capital Region. Four alternatives have been identified for consideration, and each are analyzed and evaluated.
- **Solid Waste Collection & Disposal**: Provides a description of the existing solid waste collection and disposal system and issues in the Capital Region. Four alternatives have been identified for consideration, and each are analyzed and evaluated.
- **Other Options**: In addition to the options identified for each service area, two other options have been offered for consideration.

2 APPROACH TO THE ANALYSIS

2.1 Background

The analysis includes all 21 municipalities participating in the Alberta Capital Region Governance Review. This includes:

- Beaumont (Town)
- Bon Accord (Town)
- Calmar (Town)
- Devon (Town)
- Edmonton (City)
- Fort Saskatchewan (City)
- Gibbons (Town)
- Leduc (City)
- Leduc County
- Legal (Town)
- Morinville (Town)
- New Sarepta (Village)
- Parkland County
- Redwater (Town)
- Spruce Grove (City)
- St. Albert (City)
- Stony Plain (Town)
- Strathcona County
- Thorsby (Village)
- Warburg (Village)

Each municipality was contacted at the beginning of the study and provided with a copy of an information request (see Appendix A). Interviews were conducted with representatives of 18 municipalities and information was collected from all during the course of the study.[4]

The availability of some information and level of detail provided varied significantly across municipalities. This information was used to compile a data base on the existing services provided, related infrastructure and the various financial and economic parameters of the service.

[4] The amount and quality of information received from the various municipalities varied considerably depending upon a number of factors.

In addition, a number of service agencies and individuals were asked to participate in the study to provide both data as well as insight into the issues and potential areas for further service integration (e.g. Epcor, Alberta Capital Region Wastewater Commission, etc.).

2.2 Definitions

Throughout the report, a number of terms are utilized to describe the service integration options, their scope and related implications for implementation.

- **Regional**: Refers to the Capital Region.
- **Sub-Regional**: Refers to a number of (usually neighbouring) municipalities contained within the Capital Region.
- **Local**: Refers to the individual municipalities or individuals providing services independantly.
- **Customers (End Users)**: Refers to the final consumers of the service at the residential and non-residential level. In many instances the services are sold to intermediaries who in turn pass their costs on to the final consumers.
- **Utility**: Refers to a method of financing and establishing rates for the provision of service.

2.3 Option Development & Selection

In developing the various options for each of the service areas, the following factors have been taken into consideration.

- **Evaluation Criteria**: The evaluation criteria established by the Project Steering Committee were considered as guideposts within which options should be developed and provide direction for improvements that could be achieved from additional integration of services.
- **Issues**: Specific issues associated with the delivery of each service area have been considered important in defining options. Where possible, existing and anticipated issues have been considered in option development.
- **Interviews & Discussions**: Based upon interviews and discussions with municipal officials and service providers, ideas and suggestions for service integration options were considered.

- **Other Jurisdictions**: A review of the service delivery utilized in other jurisdictions was conducted on a selected basis.
- **Existing Legislation**: The development of options and subsequent analysis has been limited to existing legislation and regulations governing the activities of municipalities.

Independence of Options

In developing and presenting the various service integration options, it has been generally assumed that the options are independent and would be implemented independently from other service integration options (except for Solid Waste – see below). It is recognized that in reality it is possible that a variety of service integration initiatives could be implemented simultaneously to varying degrees.

Many of the options developed for Solid Waste differ from those for Water and Wastewater in that they deal with various aspects of the service.[5] As a result, many of the Solid Waste service integration options could be implemented simultaneously. However, for the purposes of the report, these have been evaluated independently.

Degree of Service Integration

When developing and evaluating the service integration options for each service area, assumptions must be made regarding the extent to which the option will be implemented in the region (i.e. how many municipalities participate in the option). In general, each integration option has assumed that those municipalities that are currently participating in a regional or sub-regional service delivery model would participate in the service integration option considered. Further, it has been assumed that those municipalities that are not currently participating in a regional or sub-regional service delivery model primarily due to economics and that unless the option fundamentally changes these economic factors, they will also not participate in the new service integration option for the same reason.

2.4 Evaluation Criteria

In order to complete the evaluation of each of the alternatives, the consulting team was provided with a list of eight criteria. These are defined as follows:

1. **Citizens will receive best value for their dollars**. Refers to the point of view of the citizens, primarily customers or end users of the service. Includes

[5] The options developed for Water and Wastewater focus on organizational and pricing issues on a global basis and thus, at the regional level, are mutually exclusive.

consideration of the price/service combination received by users as well as any other impacts that spillover to non-users.

2. **Citizens will benefit from service and facility enhancements in the long term.** Refers to consideration of the long-term implications of the option to citizens of the region.

3. **Volunteerism will continue to be supported and encouraged.** Refers to how the option impacts on the rate and viability of volunteerism.

4. **Citizens will know who is responsible for service delivery and concerns.** Refers to the understandability of the service delivery system and its accessibility to the citizens of the region. This criteria includes the concept of transparency of service delivery to citizens and end users.

5. **Sustainable benefit to the region will be a priority.** Each of the options provides for continued effective delivery of services to the region in an efficient manner.

6. **Service delivery will be more cost effective after restructuring.** Refers to the point of view of the service provider, whereby costs are minimized for a given service level.

7. **No new level of government will be created.** This criteria was employed as a guideline. As a result, all options have been developed to meet this expectation.

8. **Community identity will be maintained.** Community identity has been defined as the ability to maintain effective local control over critical aspects of service delivery.

3 WATER TREATMENT AND TRANSMISSION

3.1 Background

The current pattern of water treatment and distribution of water in the Capital Region has evolved over the past 30 years. To a great extent, this service has been integrated at the region or sub-regional level and, in some instances, beyond the region. Figure 1 provides an overview of the extent to which water treatment, transmission and distribution have been integrated within the Alberta Capital Region.

FIGURE 1: CURRENT REGIONALIZATION OF WATER SERVICES

	Treatment	Transmission	Distribution
Water Treatment, Transmission and Distribution			
Regional	95%	-	-
Sub-regional	-	95%	-
Local[6]	5%	5%	100%
Total	100%	100%	100%

Water Treatment

Epcor[7] treats and delivers water to specific points for purchase by other municipalities or water commissions in the Capital Region. The price and standards of service delivery are the subject of water supply individual agreements. The water treatment facilities owned and operated by Epcor (E.L Smith and Rossdale)[8] provide water to approximately one million people in Edmonton and 40 surrounding communities. This includes 95% of the Capital

[6] Includes services independently provided by municipalities as well as private services. Private services include residential and non-residential users who do not utilize municipal water service.

[7] On May 1, 1996, the Water Branch of the City of Edmonton became incorporated as Aqualta Inc. In October 1999, the name was changed to Epcor Waters Service Inc.

[8] Total capacity of these plants is approximately 520 million litres per day. Current capacity exists for approximately 10% increase in volume.

Regions' population. Only a few communities in the Alberta Capital Region have their own municipal water treatment facilities: Devon[9], Bon Accord, Warburg, New Sarepta, and rural residents not connected to the regional system.[10]

Most residents and businesses in the region's rural municipalities (except Strathcona and to a lesser extent Sturgeon) look after water services privately. This includes country residential and farm users, as well as many commercial and industrial users. The private systems in the rural areas consist of wells providing potable water supply from ground water sources. Depending on the quality of the water, some treatment (usually water softening) is performed. Some residents and businesses utilize commercial water haulers to deliver "city" water to private cisterns. These are used in areas where the ground water sources are scarce or the water quality is poor.

Water Transmission

Transmission of water is largely integrated at a sub-regional level through either direct connections to the Epcor system or connections to Epcor through one of several regional Water Commissions (see Figure 2). The municipalities serviced by each of the Water Commissions is summarized below:

- **Capital Region Southwest Water Services Commission** (CRSWSC): Beaumont, Calmar, City of Leduc, Leduc County (Nisku), Edmonton International Airport.
- **Capital Region Northeast Water Service Commission** (CRNWSC): Fort Saskatchewan, Redwater, Gibbons, Strathcona County, Sturgeon County
- **Capital Region Parkland Water Service Commission** (CRPWSC): Stony Plain, Spruce Grove, Parkland County.
- **Highway 14 Water Services Commission**: Strathcona County (Ardrossan, Josephburg).

The communities of St. Albert, Morinville, Sherwood Park (Strathcona County) and Namao (Canadian Forces Base) are all directly connected to the Epcor system.

The current distribution system extends beyond the Capital Region to the north and east. To the north, the CRNWSC provides water to the Thorhild Water Commission. To the east, the Capital Region Vegreville corridor Water Services Commission (CRVCWSC) provides water to Bruderheim, Lamont, Chipman Mundare and Vegreville, and the Highway 14 Water Services Commission provides water to Tofield and Ryley.

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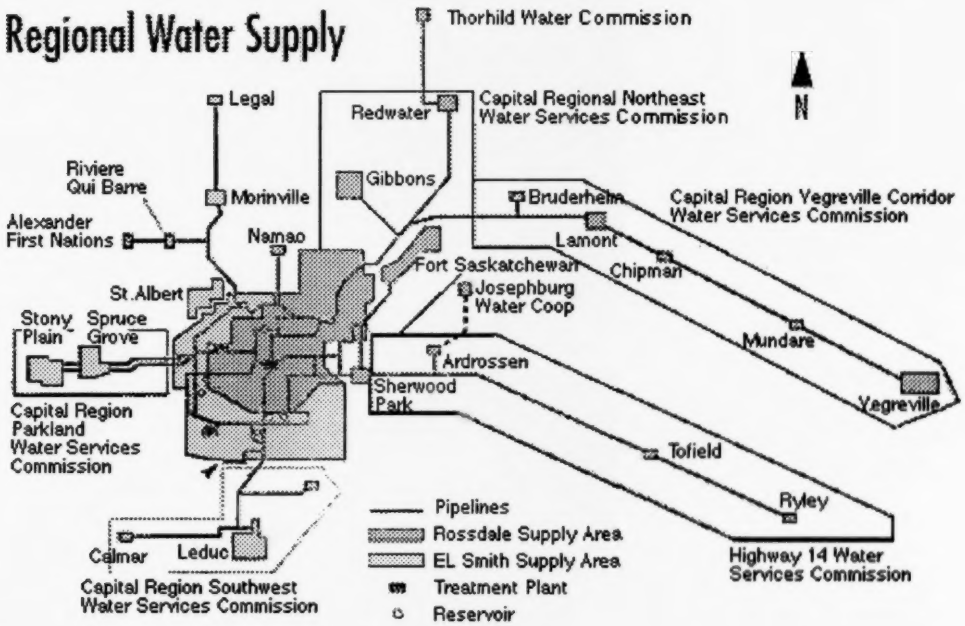
[9] Devon treats surface water and the other municipalities have well water systems.

[10] Bon Accord will be connected to the regional water system through the Capital Regional Northeast Water Service Commission in 2001.

FIGURE 2: REGIONAL WATER TRANSMISSION SYSTEM



Source: Epcor website - http://www.epcor-group.com

Local Storage & Distribution

Wtihin the Capital Region, municipalities are responsible for the local storage and distribution of water to its customers. Each municipality currently controls the expansion of service through the extension of local water lines and storage facilities. Epcor is the owner and operator of the water storage and distribution system within the City of Edmonton.

At the local level, water is provided for two primary reasons: consumption and fire protection. The amount of storage and size of the mains in the distribution system will be as a result of a combination of these two requirements.

Water Users Group

An important feature of the current regionalization of water services is the relationship between Epcor (the provider of water treatment services to the regional users) and the Water Users Group.[11] Currently, water rates and service standards are negotiated on a single user basis between Epcor and the Water Uses Group.[12] This results in all members of the group receiving the same service and rate terms, although each member has a separate agreement with Epcor.

The current situation evolved from a disagreement between Epcor (formerly Aqualta and Edmonton Water) and regional customers over water rates. This dispute was resolved by the EUB (formerly Public Utilities Board) in a decision in 1993 that compelled Epcor to follow utility rate making practices and guidelines in establishing rates for all its customers and treat the customers in the Capital Region as one group. This decision was further clarified by the EUB in its decision of June 15, 1995 which has governed the water rate making process to date.

3.2 Service Integration Options

Four service integration options have been identified for water treatment and transmission.

- Status Quo
- Sell All Systems To A Private Owner/Operator
- Equity Investment in a Regional Water Corporation
- Regional Contract Operator/Water Authority

Each option is defined and evaluated in the discussion below.

Option 1: Status Quo

Description of the option:

Epcor continues to own and operate water treatment and distribution within the City of Edmonton and provide water to customers in the region.

- Water Users Group continues to negotiate water rates as a single buyer of water from Epcor.
- All members of the Water Users Group pay the same rate for treated water produced by Epcor.

[11] The Water Users Group is an affiliation of region municipalities who purchase water from Epcor. Membership of the Water Users Group includes: Strathcona County, Fort Saskatchewan, Morinville, St. Albert, Leduc County, Spruce Grove, Namao, CRSWSC, SRNWSC and CRPWSC.

- Those municipalities currently operating independently would continue until expansion of the regional water treatment and distribution system was both desirable and economically feasible (e.g. Bon Accord – 2001).
- Local storage and distribution of water would remain the responsibility of each municipality.[13]
- Billing of customers (end users) and the rate established for these services would continue to be the responsibility of individual municipalities.

Issues:

- **Requires the continued cooperation of the Water Users Group to effectively negotiate water rates**. The current single water rate for the Water Users Group and collective negotiation of this rate requires continued cooperation by the membership and Epcor.
- **Rates are regulated by the EUB:** Where a private sector provider of an essential service (e.g. water) occurs, the EUB will review rate disputes.
- **Water Commission rate setting practices**. Most municipalities are connected to the regional water system via a water commission. While Commissions provide service to their members at a common rate, rates do differ among the Commissions, depending upon their costs of pumping, transmission, storage and metering.
- **Large variation in end user rates**. Each municipality sets local rates for water in different ways. Some follow a strict utility model while others still utilize a cash model. Many are in a transition from "cash" to true "utility" (full cost accounting) model. Some municipalities use water as a revenue source by charging rates that are above the cost of supply (e.g. Edmonton, Devon). Revenues over and above costs are available for other uses. Conversely, other communities subsidize the water rates from general revenues. In this case water users are receiving water below cost. These differing approaches result in a wide variety of user rates in the region (see Figure 3). It also raises an interesting issue regarding the establishment of water rates if greater regionalization is considered.

[12] Members of the Water Users Group are treated as one customer group for rate making purposes.
[13] It is expected that Epcor would continue to be responsible for these services in the City of Edmonton.

FIGURE 3: AVERAGE MONTHLY WATER UTILITY CHARGES FOR A SINGLE FAMILY HOUSE (MAJOR MUNICIPALITIES)[14]

	1999 (October)	2000 (September)	% Change
Edmonton	$25.42	$25.42	0.0%
St. Albert	$14.83	$14.83	0.0%
Leduc	$24.39	$24.32	-0.3%
Ft. Saskatchewan	$20.00	$20.00	0.0%
Devon	$23.05	$23.72	2.9%
Stony Plain	$26.35	$26.35	0.0%
Spruce Grove	$27.60	$26.26	-4.9%
Morinville	$29.08	$37.90	30.3%
Beaumont	$26.99	$26.99	0.0%
Leduc County	$19.72	$19.66	-0.3%
Strathcona County	$20.51	$21.36	4.1%
Average - Unweighted	$23.45	$24.26	

Source: City of Edmonton, 1999 & 2000 Residential Property Taxes & Utility Charges Surveys - http://www.gov.edmonton.ab.ca

- **Demand management continues to be a local municipal issue, with some regional influence through the Water Users Group**. Demand management is an operational issue for all water utilities. Sufficient supply combined with sufficient storage must be provided in order to meet the end users peak demand. Water treatment plants have optimal operational capacities. Though additional capacity can be provided it comes at a cost. Epcor has this cost built into the rates it charges the regional customers. Strategically sited storage throughout the region may assist in the management of peak demands. A detailed review of the region as a whole in terms of supply, storage and operation may result in further optimization possibilities in the future.
- **Regional optimization of water transmission, storage and local distribution is done as issues arise**. Long-term planning of water supply, storage and operation throughout the region is segmented across

[14] The single family house is defined as being 25 to 30 years of age with a double-car garage. Rates are based on 20 cubic meter/month water consulting, including monthly services charges where applicable. Spruce Grove charges one rate for water and sewer – as a result water rates reported here are estimates.

the service providers. Opportunities for optimizing the "system" from a regional perspective are addressed through the Water Users Group.[15]

- **Expertise of some smaller centres may be a concern without succession planning**. Smaller communities have a smaller workforce that is skilled in all areas of municipal service. The opportunity to replace these personnel due to staff turnover or retirement may prove to be a difficult task. New technologies have increased the requirement for training and many operators are becoming very skilled at one particular aspect of municipal service delivery.
- **Water Service and Regional Development**: The ability to promote and facilitate local development depends upon the availability and costs of basic municipal infrastructure and services, including the provision of water services. The control of service provision is seen by some as a measure by which local development can be promoted or controlled. The influence of service delivery models on local autonomy regarding regional development has been raised as a key consideration by several stakeholders.

Advantages:

- The evolution to the current system has resulted in significant improvements in efficiency and the quality of the service. Most users, if not all, feel the price/service balance is good.
- The quality of water in the region is considered to be very good. Some inconsistency of quality exists for those municipalities who are not connected to the regional system.
- Some ability to control supply of water locally can be considered an economic development tool. The ability of local governments to supply water to prospective commercial and industrial entities can be seen as an important element of local autonomy.
- Each municipality has the ability to establish local service delivery standards.

Disadvantages:

- There is significant variation in end user charges within the region which are not necessarily reflective of the true cost of service.
- Different approaches are taken in the region to establishing the rate for treatment (e.g. uniform rate) versus transmission, storage and distribution

[15] Inefficiencies in the "system" are identified and addressed through activities of the Water Users Group. This is an ancillary function of the group and not its primary purpose.

(e.g. based upon the costs of the system). This leads to a variety of costing approaches to be included in the development of user charges.

- The use of uniform rates for water treatment, and variation in approaches to recovering transmission costs, results in inconsistent signals to users in various locales in the region. For example, there is a subsidization of water rates in some municipalities and surcharges above cost in others. Location decisions made by developers may be influenced by these costs.[16]
- Lack of coordinated planning for components of the transmission and storage system in the region can result in some inefficiencies in infrastructure development.

Option 2: Sell All Systems To A Private Owner/Operator

Description of the option:

- Sell all water systems, including: Epcor's water treatment, distribution and storage facilities, regional water lines and local transmission, storage and distribution systems - to one owner/operator, a private sector corporation. With its current ownership configuration, it has been assumed that the private sector corporation would not be Epcor.[17]
- The operation and maintenance of the system would be the responsibility of the private owner. In addition the private owner/operator would make decisions regarding any expansion or upgrading of the system.
- All billing and customer relations would be the responsibility of the private owner.

Issues:

- **Rates would be subject to regulation by the EUB**. The rates for all users in the region would be subject to EUB regulation. Rates would include all system operating and maintenance costs, as well as an approved allocation of capital expenditures and rate of return on equity.
- **Cost Based Rates**: The rates charged to users would be established by the provider and subject to EUB regulation in the case of a dispute. It is expected that these rates would therefore be established on the basis of cost.[18]

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[16] The application of differential development levy or development agreement costs can be used to partially adjust for the "true" cost of providing infrastructure and service.

[17] Currently, Epcor is 100% owned by the City of Edmonton.

[18] In any situation where rates are not cost based, the true cost of service to users will not be reflected in the rates charged for the service.

- **Water Service and Regional Development**: The ability of municipalities to independently use water services to promote and facilitate local development may be reduced.
- **Fragmentation in ownership of assets**. The willingness of municipalities to sell their assets and operations to a common owner may be an issue. This may be most acute for municipalities that are currently not a member of the regional system. If a number of municipalities choose not to participate in this option, the potential benefits of this option may be significantly eroded.
- **Role of the Water Users Group.** The Water Users Group would no longer play a role in determining rates, but could continue to monitor demand management and act in a watch-dog role to ensure that the establishment of rates is done reasonably and that customers in the region are treated fairly. In addition, in a fragmentation scenario, a Water Users Group could perform the same role for those municipalities who choose not to participate in this option, as it currently performs with Epcor.
- **Independent private ownership.** The independence of the common private sector owner could be an issue. If one municipality (or several) was to be the sole (or a major) equity holder in the common owner/operator (e.g. Epcor), this would likely create unnecessary concerns regarding the governance of the system.

Advantages:

- Sale of infrastructure to common owner/operator will generate capital for each municipality. The sale of assets would include the infrastructure currently operated and maintained by the various water commissions.
- If rates are ultimately based on the cost of service, then signals to future development will be sent regarding the "true" cost of water services in various areas, resulting in more cost-effective patterns of development.
- System wide service, including treatment, transmission, storage and local distribution, could result in some improvements in system planning and infrastructure cost savings. This would be in the hands of the private sector owner/operator.
- Some economies of scale in the maintenance and upkeep of the system could be achieved.
- There would be a reduction in the local and sub-regional administrative expenses, leading to greater efficiencies.
- It is estimated that total efficiency gains could be equal to approximately 10% of the administration, transmission, distribution and storage systems that would be added to that currently operated by Epcor. The annual

value of these economies is estimated to be approximately $3 million.[19] This represents approximately 1.5% of system costs.[20]

- There would be a consistently high level of expertise in the provision, planning and maintenance of the water system for all participating municipalities.
- Legal liability for the system would held by the private operator.[21]

Disadvantages:

- The determination of the value of all water assets in the region would require analysis and ultimately negotiation.
- There will be an increase in the ROE (Return on Equity) requiring an increase in costs for those systems which were previously owned by municipalities and commissions. This private sector cost is currently added to the cost of service provided by Epcor and would be extended to all components of the system in this option.
- There will be adjustments to water rates for most users in all municipalities.
- There will be a loss in local autonomy regarding the determination of local service levels and rates for water.
- Participating municipalities would lose the ability to collect revenues from developers through local improvement charges or development agreements for the water infrastructure.
- If the private owner/operator were to be owned by one (or some) local municipality(s), issues associated with its governance may arise.
- There will be one less function area which local government overheads can be shared.
- Not all municipalities in the region would necessarily participate in this option. It has been assumed that those municipalities with stand-alone water operations would continue to operate independently for the same reason they are independent from the regional system now.

Option 3: Equity Investment in a Regional Water Corporation

Description of the option:

[19] This assumes that all municipalities currently using Epcor water would participate in the option.

[20] Assuming a 'uniform' approach to rate setting, the average water customer would experience a 1.5% reduction in water costs. This does not include consideration of additional cost items or redistribution of cost issues discussed in disadvantages.

[21] It is assumed that the private operator would be required to obtain sufficient insurance to cover any liability associated with the system. It should be noted that this would likely be at a cost.

- In this option, municipalities would exchange all water systems, including: the water treatment, transmission, distribution and storage facilities held by Epcor (City of Edmonton), regional water lines and local transmission, storage and distribution systems – to a new private Regional Water Corporation that would be a common regional operator/service provider. This private operator/service provider would be owned by the municipalities participating in the option.[22] Each municipality would receive shares in the operation in exchange for the value of its infrastructure.
- This private corporation would have its own staff and operate independently of the operations of the municipal shareholders. This is envisioned to operate in a similar fashion to Epcor. However, it should be noted that it is assumed that Epcor would not be the corporate vehicle for implementation of this option for similar reasons to those discussed in Option 2 above.
- This option differs from the formation of a commission in that it allows for greater flexibility in the basis for representation on the Board of Directors and in establishing financial arrangements for the corporation that can be part of the agreement among municipalities.[23]

Issues:

- **The voting structure of the company would have to be determined.** The voting structure for decision-making will be a difficult issue to resolve. This has been evidenced by the controversy associated with municipal representation and voting structures during the Alberta Capital Regional Governance Review process.
- **Rates would be determined by the owners**. The EUB would not be a regulator of rates unless services were provided to non-shareholder municipalities.
- **Uniform (Postage Stamp) versus Cost Based Rates**: The rates charged to users would be at the discretion of the shareholders. In this option, the shareholders would directly control the rates and not require negotiation of rates as is currently the case for water treatment.[24]
- **Shareholders could receive a dividend (Return on Equity).** If the shareholders of the corporation decided to issue dividends, this would both increase municipal revenues and increase the cost of the service to users.

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[22] In this analysis, it has been assumed that all municipalities that currently receive regional water services would participate in the creation of a regional water corporation.

[23] Current regulations require that municipal representation on Commissions "must be a councillor of the muniicpality". In addition, commissions are not allowed to return dividends to shareholders.

[24] Epcor and the Water Users Group currently negotiate rates for treated water.

- **Fragmented participation**. The willingness of municipalities to participate in this option may be an issue. This may be most acute for municipalities that are currently not a member of the regional system. If a number of municipalities choose not to participate in this option, the potential benefits may be significantly eroded.

Advantages:

- All shareholders could receive a return on their equity invested in the corporation.[25]
- System wide service, including treatment, transmission, storage and local distribution, could result in some improvements in system planning and infrastructure cost savings. This differs from Option 2 in that Option 3 allows participating municipalities to retain more direct input into these decisions.
- Some economies of scale in the maintenance and upkeep of the system could be achieved. It is expected these would be similar to those presented in Option 2.
- There would be a reduction the local and sub-regional administrative expenses, leading to greater efficiencies.
- The sum of efficiencies that could be gained from this option are expected to be similar to those estimated in Option 2.
- There would be a consistently high level of expertise in the provision, planning and maintenance of the system.

Disadvantages:

- The valuation of water assets and establishment of the appropriate legal framework for the new entity will require significant effort.
- Disparities in municipality shareholder equity may create administration and equity issues. For example, there could be questions regarding the ROE, allocation of costs in establishing user charges or the priorities for infrastructure investment.
- The establishment of an equitable rate setting mechanism may take time and will depend upon the approach taken by member municipalities to negotiating rates.
- There will be an increase in the ROE (Return on Equity) requiring an increase in costs for those systems which were previously owned by municipalities and commissions.[26]

[25] Alternatively, end users could receive water at cost.
[26] NOTE: the shareholders could decide to reduce or eliminate ROE.

- Participating municipalities would lose the ability to collect revenues from developers through local improvement charges or development agreements for the water infrastructure.
- There will be some loss in local autonomy regarding the determination of local service levels and rates for water.
- There will be one less function area which local government overheads can be shared.
- Not all municipalities in the region would necessarily participate in this option. It has been assumed that those municipalities with stand-alone water operations would continue to operate independently due to economics.

Option 4: Regional Contract Operator/Water Authority

Description of the option:

- All municipalities would retain the ownership and control of their local transmission, storage and distribution systems. However, a common contractor/operator would be hired to operate and maintain the entire system. This arrangement could be facilitated by the creation of a Regional Water Authority (however it is not essential that this formal step be taken.)
- In this option, the operating maintenance costs for the system would be allocated to the users of the system upon a pre-agreed upon basis. However, decisions regarding future investments in expanding service would be in the control of each individual municipality. It is expected that each municipality would be responsible for billing end users, thus allowing for local control over the final price to consumers of the service.

Issues:

- **The organization and powers of the Authority would need to be determined.** The scope and powers of the Authority would need to be established. It is anticipated the Authority would minimally be responsible for the establishment of a contract with an operator to maintain the entire system. The Authority could also have the authority to plan the future of the system.
- **Water Line Commissions may not be necessary under the Authority**. The current role of the Water Commissions would be

duplicated by the Authority if it were to take a regional system policy and planning role.[27]

- **Uniform (Postage Stamp) versus Cost Based Rates**: As with Option 2, the approach to establishing rates would need to be established. This has been discussed in earlier sections of the report.

Advantages:

- System wide service, including treatment, transmission, storage and local distribution, could result in some improvements in system planning and infrastructure cost savings.
- Some economies of scale in the maintenance and upkeep of the system could be achieved.
- There would be a reduction in the local and sub-regional administrative expenses, leading to greater efficiencies.
- There would be a consistently high level of expertise in the provision, planning and maintenance of the system.
- Each municipality would retain ownership and control of its local distribution and storage systems.

Disadvantages:

- The establishment of an equitable rate setting mechanism may take time and will depend upon the approach taken by member municipalities to negotiating a rate structure.
- There will be some loss in local autonomy regarding the determination of local service levels and rates for water. This will be less than under the previous two options (2 & 3) as the local municipalities will retain ownership and control of local infrastructure. The loss of autonomy will result if the Authority has some influence on regional planning of the system.
- There will be one less function area which local government overheads can be shared.
- Not all municipalities in the region would necessarily participate in this option. It has been assumed that those municipalities with stand-alone water operations would continue to operate independently due to economics.

[27] The assets of the Water Commissions would have to revert to the participating municipalities as an Authority can not own assets under current regulations. In addition, the liability for the system would rest with individual municipalities.

3.3 Evaluation of Service Options

In this section, each of the options have been evaluated against the nine criteria established by the Project Steering Committee. The following rating system has been employed in this analysis:

- **Best**: This is the best option against the criteria.
- **Good**: The option performs well against the criteria.
- **Poor**: Substantive improvements can be made in this area.

For this service area, the evaluation has assumed that each option is mutually exclusive and would include all region municipalities where it is economical to do so.

FIGURE 4: WATER TREATMENT & TRANSMISSION OPTION EVALUATION

	Option 1	Option 2	Option 3	Option 4
1 Citizens will receive best value for their dollars.	Good	Best	Best	Best
2 Citizens will benefit from service and facility enhancements in the long term.	Good	Best	Best	Good
3 Volunteerism will continue to be supported and encouraged.	N/A			
4 Citizens will know who is responsible for service delivery and concerns.	Poor	Best	Best	Good
5 Sustainable benefit to the region will be a priority.	Good	Good	Good	Good
6 Service delivery will be more cost effective after restructuring.	Good	Best	Best	Best
7 No new level of government will be created.	N/A			
8 Community identity will be maintained.	Good	Poor	Poor	Good

Option	Definition
Option 1	Status Quo
Option 2	Sell All Systems to a Private Owner/Operator
Option 3	Equity Investment in a Regional Water Corporation
Option 4	Regional Contract Operator/Water Authority

Evaluation Results:

- **Citizens will receive best value for their dollars.** It is expected that an improvement in the price/service combination can be achieved in each of the options over the status quo. These include capturing some additional economies of scale as well as improvements in the planning of future

infrastructure. It is expected that the ROE and other costs associated with the alternatives (Options 2, 3 & 4) are not significant enough to eliminate or exceed the efficiency gains.[28]

- **Citizens will benefit from service and facility enhancements in the long term**. Options 2 & 3 represent an improvement over the status quo as it allows for the coordination of infrastructure planning in a formal manner. In Options 1 & 4, regional planning of future infrastructure development will not be formalized.
- **Volunteerism will continue to be supported and encouraged**. This criteria is not considered applicable (N/A) for this service area.
- **Citizens will know who is responsible for service delivery and concerns**. There are a number of administrative entities with the Status Quo (Option 1) that could lead to confusion regarding who is responsible for the delivery and planning of water services. Options 2 & 3 perform best against this criteria as they simplify the administrative structure.
- **Sustainable benefit to the region will be a priority**. Each of the options provides for continued delivery of water services to the region in an efficient manner. Each of the options show every opportunity to provide for a sustainable benefit to the region.
- **Service delivery will be more cost effective after restructuring**. It is expected that an improvement in the price/service combination can be achieved in each of the options over the status quo. These include capturing some additional economies of scale as well as improvements in the planning of future infrastructure. The overall reduction in cost is estimated to be approximately 1.5% if all municipalities currently receiving regional service are included in these options.
- **No new level of government will be created**. The development of options to the Status Quo has explicitly excluded alternatives that would create a new level of government.
- **Community identity will be maintained**. To the extent that local economic development decisions depend upon this service, the loss in local municipal control could be a concern. The Status Quo (Option 1) and Option 4 are considered to hold the advantage in this area for two reasons: first, local municipalities will control all billing to customers; and, decisions incremental additions to infrastructure will be in the control of local decisions makers.

[28] ROE is only relevant for Options 2 & 3 and would be incremental for the regional transmission, local distribution and storage only.

4 WASTEWATER TREATMENT AND TRANSMISSION

To a great extent, wastewater transmission and treatment have been integrated within the Capital Region. At the sub-regional level, both the City of Edmonton and the Alberta Capital Region Wastewater Commission (ACRWC) provide wastewater treatment service. Each has a wastewater treatment plant and transmission system. These two systems are connected and share services through "swap" agreements that help to rationalize the infrastructure in the region and create operating efficiencies. At the local level, municipalities are responsible for sewer collection within their own boundaries.

FIGURE 5: CURRENT REGIONALIZATION OF WASTE WATER SERVICES

	Treatment	Transmission	Collection
Wastewater Treatment, Transmission & Collection			
Regional	-	-	-
Sub-regional	90%	90%	-
Local	10%	10%	100%
Total	100%	100%	100%

City of Edmonton

The City of Edmonton has a largely self-contained wastewater collection and treatment system. The value of this system is currently estimated to be over $4 billion. Like many municipalities in the region, Edmonton's wastewater and storm water systems and operations are integrated.

Edmonton owns and operates the Gold Bar wastewater treatment plant located in northeast Edmonton. Currently this facility processes approximately 100 billion litres of watewater per year.[29] It is connected to the City of Edmonton wastewater system and to the ACRWC system. Edmonton accepts wastewater from

[29] Based upon service to approximately 650,000 residents as well as commercial and industrial customers, which includes approximately 16,000 wastewater non-residential accounts.

Commission members south of Edmonton.[30] In exchange, the ACRWC accepts wastewater from areas in north Edmonton.[31] The exchange of wastewater between Edmonton and the ACRWC represents approximately 1% of the total activity of Edmonton's Drainage Branch.

Alberta Capital Region Wastewater Commission (ACRWC)

The Alberta Capital Region Wastewater Commission (ACRWC) has 12 members, and provides wastewater transmission and treatment to the Commission's plant near Bremner.[32] This plant currently processes approximately 20,000 million litres of wastewater per year serving residential, commercial and industrial customers in the region.[33]

The demand for wastewater treatment capacity in the outlying region arose in the late 1970's at a time when the regional economy was growing quickly and projections indicated that additional wastewater treatment capacity was necessary to accommodate growth in the neighbouring communities outside of Edmonton. The City of Edmonton was approached to integrate the regional infrastructure with the City's infrastructure, but Edmonton was not interested in participating at the time.[34] As a result, a separate regional plant was constructed in 1984, with the province contributing 90% of the funding for the Commission treatment plant and related trunk transmission infrastructure. Edmonton did not participate in the planning, financing or development of the Commission infrastructure.

The ACRWC is regulated by Alberta Regulation 129/85, entitled "Capital Region Sewage Commission Regulation". The Commission currently operates on the basis of four main principles:

- Each community gets one vote.
- The fees charged to the members shall be based on the full cost recovery of supplying wastewater services.
- There will be a uniform sewage rate for all members.
- Wastewater transmission and treatment services shall be supplied on an as required basis.

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[30] This includes the Town of Beaumont, City of Leduc and County of Leduc.

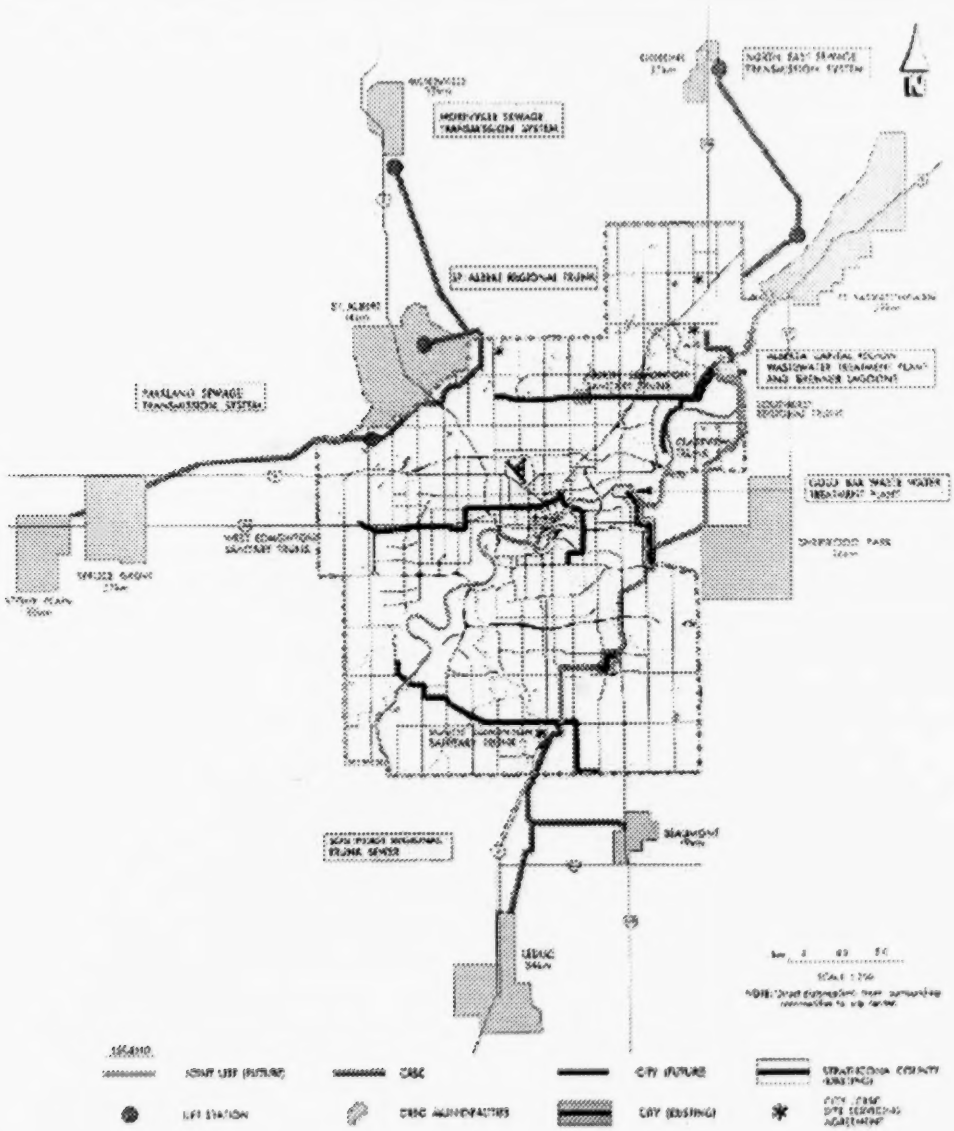
[31] Edmonton wastewater from the Clareview area is directed to the ACRWC wastewater treatment plant.

[32] The members of the ACRWC are: Stony Plain, Spruce Grove, Parkland County, St. Albert, Morinville, Sturgeon County, Gibbons, Fort Saskatchewan, Strathcona County, Beaumont, City of Leduc and County of Leduc.

[33] Currently, the regional wastewater treatment plant serves approximately 175,000 residents in the region, as well as commercial and industrial customers.

[34] Discussions took place at the same time the City of Edmonton was pursuing annexation of surrounding areas.

FIGURE 6: REGIONAL WASTEWATER TRANSMISSION SYSTEM



Local Wastewater Systems

Eight municipalities in the Capital Region are not connected to the regional wastewater system and have their own wastewater systems. These include the following:

- Bon Accord (Town)
- Calmar (Town)
- Devon (Town)
- Legal (Town)
- New Sarepta (Village)
- Redwater (Town)
- Thorsby (Village)
- Warburg (Village)

In addition, the Counties in the Capital Region have additional treatment facilities. Some of the remote communities in the counties have their own wastewater facilities in the form of lagoon systems (e.g. Calahoo, Josephburg, etc.)

4.1 Service Integration Options

Four options have been identified for wastewater treatment and transmission.

1. Status Quo
2. Sell All Systems to A Private Owner/Operator
3. Equity Investment in a Regional Wastewater Corporation
4. Regional Contract Operator/Wastewater Authority

Option 1: Status Quo

In the case of wastewater, the status quo is actively evolving. Both the City of Edmonton and the Alberta Capital Region Wastewater Commission are undertaking an initiative to improve their ability to cooperate and coordinate the planning and efficient delivery of wastewater services to their customers. The evolution of the current situation has been incorporated into this scenario.

- The City of Edmonton and the Alberta Capital Region Wastewater Commission (ACRWC) would continue to be the primary providers of wastewater treatment in the region.[35]

[35] Not including the eight municipalities that currently have their own independent systems.

- Edmonton and the ACRWC would remain autonomous,[36] however, further cooperation between the two systems is required to efficiently provide treatment capacity to the users connected to each system.
- It is anticipated that a new master agreement between the City of Edmonton and the Commission will be negotiated to effectively and efficiently maintain the status quo and ensure that the transmission and treatment of wastewater in the Capital Region is provided efficiently and effectively.
- All members of the ACRWC continue to pay the same rate for wastewater transmission and treatment services (postage stamp rate).[37]
- Expansion of the regional wastewater treatment and transmission system could occur when economically feasible/as desired by municipalities (e.g. additional wastewater treatment capacity to service ACRWC members and Edmonton at the ACRWC plant, transmission line connecting NE Edmonton).
- Local collection of wastewater would remain the responsibility of each municipality.
- Billing of customers and the rates established for wastewater services in municipalities would continue to be the responsibility of individual municipalities.

Issues:

- **Continued cooperation between the City of Edmonton and the Commission**. As described above, within the Capital Region there already exists a considerable level of cooperation between the City of Edmonton and the ACRWC. It is expected that this level of cooperation will both continue and will need to be expanded. This will involve the re-negotiation of existing agreements into a single master agreement[38] and the development of a process by which operational and system planning can be enhanced. Edmonton and the ACRWC are currently working with an Ad-Hoc Committee to find ways to improve cooperation and reduce costs. It is expected an agreement will include consideration of the following issues: bylaw standardization and enforcement, rates to be charged for

[36] The City of Edmonton will continue to be treated as a customer of the Commission, and not as a member.
[37] Based upon the regulations establishing the ACRWC.
[38] It is expected that this agreement will provide a framework within which planning and development of needed infrastructure and services can be coordinated.

services, cost sharing for new infrastructure, and control of storm water entering the sanitary system.[39]

- **Treatment Capacity Additions:** It is anticipated that both the Region and Edmonton will need additional treatment capacity within the 20 year analysis timeframe. How this needed capacity is brought on stream will be the subject of consultation and cooperation between the City of Edmonton and the ACRWC.
- **Expansion of the regional system**: Currently the ACRWC system will be expanded as necessary to accommodate growth within member municipalities. Where new development requires significant expansion of existing, or new, transmission capacity, the cost could significantly affect rates.[40] A policy of regional system expansion needs to be established to ensure that current system users are not disadvantaged unfairly. This issue is also relevant for Edmonton and highlights the need for some consideration of local land use planning decisions and their impact on basic wastewater service delivery.
- **Infrastructure Rehabilitation & Replacement Requirements:** In Edmonton's 10 year Infrastructure Strategy, annual sewer rehabilitation needs are projected to increase from approximately $10 million to $13 million. While additional analysis is required to refine expenditure totals, there is a clearly identified need for rehabilitation of lines built during peak activity periods of the 1950's and 1970's.
- **Optimization of wastewater treatment and transmission system is not formalized**. Long-term planning and coordination of wastewater treatment and transmission systems at the regional and sub-regional level could result in additional operating, investment and cost efficiencies.
- **Service Standards in the Region:** A key factor affecting the need for additional treatment and transmission capacity is the infiltration and inflow (I/I) of storm water into the sanitary sewer system.[41] The I/I (or extraneous) flows utilize both transmission and treatment capacity which would otherwise be available for sanitary sewer flows. There is a need to establish service standards on this issue that are fair to the users of the system. In addition, a lack of consistency in pollutant load bylaw

[39] Some of the potential synergies which will be considered include the centralization of laboratory services, greater integration of shared industrial monitoring and analysis, and improved flow management, especially during peak hours.

[40] New development seeking wastewater services may be located in developing areas within member municipalities or in neighbouring municipalities not currently connected to the ACRWC transmission system.

[41] I/I is the process of groundwater or rainwater entering the sanitary sewer system. Entry of storm water into the sanitary sewer system can occur from municipal (e.g. manholes) and private sources (e.g. roof drains).

enforcement in the Capital Region results in some additional treatment capacity and cost concerns.

- **Large variation in end user rates**. Each municipality sets local rates for wastewater services in different ways. Some follow a strict utility model while others utilize a cash model. Some are in a transition from Cash to Utility (full cost accounting) model. Some municipalities use wastewater services as a revenue source by charging rates that are above the cost of supply (e.g. Edmonton). Revenues over and above costs are then available for other uses. Conversely, other communities subsidize the wastewater rates from general revenues. In this case users are receiving wastewater services below cost. These differing approaches result in a wide variety of user rates in the region. It also raises an interesting issue regarding the establishment of wastewater rates if greater regionalization is considered.

FIGURE 7: AVERAGE MONTHLY WASTEWATER UTILITY CHARGES FOR A SINGLE FAMILY HOUSE (MAJOR MUNICIPALITIES)[42]

	1999 (October)	2000 (September)	% Change
Edmonton	$20.65	$21.16	2.5%
St. Albert	$12.86	$13.38	4.0%
Leduc	$14.12	$17.89	26.7%
Ft. Saskatchewan	$10.65	$10.65	0.0%
Devon	$18.29	$23.34	27.6%
Stony Plain	$9.21	$9.21	0.0%
Spruce Grove	$9.70	$9.23	-4.9%
Morinville	$8.78	$9.66	10.0%
Beaumont	$16.79	$13.39	-20.3%
Leduc County	$17.60	$17.60	0.0%
Strathcona County	$23.03	$23.03	0.0%
Average - Unweighted	$14.70	$15.32	

[42] The single family house is defined as being 25 to 30 years of age with a double-car garage. Rates are based on 20 cubic meter/month water consulting, including monthly services charges where applicable. Spruce Grove charges one rate for water and sewer – as a result sewer rates reported here are estimates.

Source: City of Edmonton, 1999 & 2000 Residential Property Taxes & Utility Charges Surveys - http://www.gov.edmonton.ab.ca

- **Municipalities in the Capital Region not currently connected.** Wastewater expertise of some smaller communities in the Capital Region may be a concern without succession planning. Smaller communities generally have a smaller workforce that is skilled in all areas of municipal service. The opportunity to replace these personnel due to staff turnover or retirement may prove to be a difficult task. New technologies have increased the requirement for training and many operators are becoming very skilled at one particular aspect of municipal service delivery.
- **Environmental Regulations**: The province regulates various aspects of wastewater treatment and the quality of water. It is expected that these regulations will generally become more stringent over time. This will put pressure on the wastewater treatment service providers to improve treatment processes. It may also require that additional treatment capacity be established to ensure compliance with regulations.
- **Wastewater Service and Regional Development**: As discussed with respect to water, the ability to promote and facilitate local development depends upon the availability and costs of basic municipal infrastructure and services, including sanitary sewer. The control of service provision is seen by some as a measure by which regional development can be promoted or controlled. The influence of service delivery models on local autonomy regarding regional development has been raised as a key consideration by several stakeholders.

Advantages:

- There is a considerable level of cooperation currently between the City of Edmonton and the ACRWC for treatment and transmission of wastewater. This is evidenced by the existing "swap" agreements. It appears to be the intention of both parties to further enhance the cooperation and coordination of wastewater treatment and transmission through the development of a master agreement and a coordination process.
- The quality of wastewater treatment in the region is excellent. Some inconsistency of quality may exist for those municipalities that are not connected to the regional system.
- The ability to control the provision of wastewater service locally can be considered an economic development tool. The ability of local governments to supply wastewater to prospective commercial and industrial entities can be seen as an important element of local autonomy.

- Each municipality has the ability to establish local service delivery standards.[43]

Disadvantages:

- The "postage stamp", or uniform rate leads to some potential cost of service issues for users of the regional system (ACRWC). The uniform rate does not reflect the costs of providing services in different areas of the region, which may lead to operating and cost inefficiencies.
- The ACRWC does not have a planning function and provides services on an as required basis. This can lead to the inefficient utilization and optimization of the existing regional system.
- Service levels relating to I/I, which are established at the local municipal level, can result in pressure to improve service in some areas at the expense to all users connected to the ACRWC system.
- Different approaches are taken in the region to establishing the rate to end uses for wastewater services. This factor, combined with the regional system's "postage stamp" rate can result in inconsistent signals to users in various locales in the region. For example, subsidization of rates in one local municipality versus surcharges in another.
- Lack of coordinated planning for components of the transmission and storage system in the region can result in some inefficiencies in infrastructure development.

Option 2: Sell All Systems To A Private Owner/Operator

Description of the option:

- Sell all wastewater systems, including: City of Edmonton, ACRWC and local municipal operated systems within the Capital Region - to one common owner, private sector corporation. With its current ownership configuration, it has been assumed that the private sector corporation would not be Epcor.[44]
- The operation and maintenance of the system would be the responsibility of the private owner. In addition, the private owner/operator would make decisions regarding any expansions or upgrading of the system.
- All billing and customer relations would be the responsibility of the private owner.

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[43] This has a corresponding disadvantage where these local municipal standards impose service delivery and cost issues on other users connected to the regional system.

[44] During the course of the study, it has been publicly reported that Epcor was interested in taking responsibility for providing wastewater services in the City of Edmonton.

Issues:

- **Rates would be subject to regulation by the EUB**. The rates for all users in the region would be subject to EUB regulation. Rates would include all system operating and maintenance costs, as well as an approved allocation of capital expenditures and rate of return on equity.
- **Cost Based Rates**: The rates charged to end users would be established by the provider and subject to EUB regulation in the case of dispute. It is expected that these rates would therefore be established on the basis of cost.[45]
- **Wastewater Service and Regional Development**: The ability of municipalities to independently use wastewater services to promote and facilitate local development may be reduced.
- **Fragmentation in ownership of assets**. The willingness of municipalities to sell their assets and operations to a common owner may be an issue. This may be most acute for municipalities that are currently not a member of the regional system. If a number of municipalities choose not to participate in this option, the potential benefits of this option may be significantly eroded.
- **Independent private ownership.** The independence of the common owner could be an issue. If one municipality (or several) was to be the sole (or a major) equity holder in the common owner/operator (e.g. Epcor), this would likely create significant concerns regarding the governance of the system.

Advantages:

- Sale of regional, sub-regional and municipal infrastructure to common owner/operator will generate capital for all those who participate.
- If rates are ultimately based on the cost of service, then signals to future development will be sent regarding the "true" cost of wastewater services in various areas, resulting in more cost-effective patterns of development.
- System wide service, including treatment, transmission and collection, could result in some improvements in system planning and infrastructure cost savings. These decisions would be in the hands of the private sector owner/operator.
- Some economies of scale in the maintenance and upkeep of the system could be achieved.

[45] In any situation where rates are not cost based, the true cost of service to users will not be reflected in the rates charged for the service.

- There would be a reduction in the local and sub-regional administrative expenses, leading to greater efficiencies.
- There would be a consistently high level of expertise in the provision, planning and maintenance of the system.
- There would be a consistent level of expertise and experience in the delivery of wastewater services across all systems.
- Legal liability for the system would held by the private operator.[46]

Disadvantages:

- The valuation of wastewater assets and establishment of the appropriate legal framework for the new entity will require significant effort.
- There will be an additional cost for ROE (Return on Equity) requiring an increase in costs for those systems which were previously owned by municipalities and commissions.
- There will be adjustments to wastewater rates for most users in all municipalities.
- There will be a loss in local autonomy regarding the determination of local service levels and rates for wastewater.
- Participating municipalities would lose the ability to collect revenues from developers through local improvement charges or development agreements for the wastewater infrastructure.
- The coordination of land use planning and development with the provision of services may be more cumbersome.
- There will be one less function area which local government overheads can be shared.
- The private corporation's focus will be primarily on cost savings and efficiencies, which may mean operating closer to guidelines and less focus on "environmental stewardship".

Option 3: Equity Investment in Regional Wastewater Corporation

Description of the option:

- In this option, municipalities would exchange all wastewater systems, including: City of Edmonton and ACRWC trunks and treatment facilities, and local municipal operated systems in the Capital Region - to one common owner, private sector corporation. – to a new private Regional Wastewater Corporation that would be a common regional

[46] It is assumed that the private operator would be required to obtain sufficient insurance to cover any liability associated with the system. It should be noted that this would likely be at a cost.

operator/service provider. This private operator/service provider would be owned by the municipalities agreeing to participate in the option. Each municipality would receive shares in the operation in exchange for the value of its infrastructure.

- This private corporation would have its own staff and operate independently of the operations of the municipal shareholders.
- This option differs from the formation of a commission in that it allows for greater flexibility in the basis for representation on the Board of Directors and in establishing financial arrangements for the corporation that can be part of the agreement among municipalities.[47]

Issues:

- **The voting structure of the company would have to be determined.** The voting structure for decision-making will be a difficult issue to resolve. This has been evidenced by the controversy associated with municipal representation and voting structures during the Alberta Capital Regional Governance Review process.
- **Rates would be determined by the owners**. The EUB would not be a regulator of rates unless services were provided to non-shareholder municipalities.
- **Uniform (Postage Stamp) versus Cost Based Rates**: The rates charged to users would be at the discretion of the shareholders. In this option, the shareholders would directly control rates.
- **Shareholders could receive a dividend (Return on Equity).** If the shareholders of the corporation decided to issue dividends, this would both increase municipal revenues and increase the cost of the service to users.
- **Fragmented participation**. The willingness of municipalities to participate in this option may be an issue. This may be most acute for municipalities that are currently not a member of the regional system. If a number of municipalities choose not to participate in this option, the potential benefits may be significantly eroded.

Advantages:

- All shareholders could receive a return on their equity invested in the corporation.
- System wide service, including treatment, transmission and local collection, could result in some improvements in system planning and infrastructure

[47] Current regulations require that municipal representation on Commissions "must be a councillor of the muniicpality". In addition, commissions are not allowed to return dividends to shareholders.

cost savings. This differs from Option 2 in that this option allows participating municipalities to retain more direct input into these decisions.

- Some economies of scale in the maintenance and upkeep of the system could be achieved. It is expected these would be similar to those presented in Option 2.
- There would be a reduction in the local and sub-regional administrative expenses, leading to greater efficiencies.
- The sum of efficiencies that could be gained from this option are expected to be similar to those estimated in Option 2.
- There would be a consistently high level of expertise in the provision, planning and maintenance of the system.
- Quality of service and "environmental stewardship" can be maintained.

Disadvantages:

- The valuation of wastewater assets and establishment of the appropriate legal framework for the new entity will require significant effort.
- Disparities in municipality shareholder equity may create administration and equity issues. For example, there could be questions regarding the ROE, allocation of costs in establishing user charges or the priorities for infrastructure investment.
- The establishment of an equitable rate setting mechanism may take time and will depend upon the approach taken by member municipalities to negotiating rates.
- There will be an increase in the ROE (Return on Equity) requiring an increase in costs for those systems which were previously owned by municipalities and commissions.[48]
- Participating municipalities would lose the ability to collect revenues from developers through local improvement charges or development agreements for the wastewater infrastructure.
- There will be some loss in local autonomy regarding the determination of local service levels and rates for wastewater.
- There will be one less function area which local government overheads can be shared.
- Not all municipalities in the region would necessarily participate in this option. It has been assumed that those municipalities with stand-alone water operations would continue to operate independently due to economics.

[48] NOTE: the shareholders could decide to reduce or eliminate ROE.

Option 4: Regional Contract Operator/Wastewater Authority

Description of the option:

- All municipalities would retain the ownership and control of their local transmission and collection systems. However, a common contractor/operator would be hired to operate and maintain the entire system. This arrangement could be facilitated by the creation of a Regional Wastewater Authority (however it is not essential that this formal step be taken.)
- In this option, the operating maintenance costs for the system would be allocated to the users of the system upon a pre-agreed upon basis. However, decisions regarding future investments in expanding service would be in the control of each individual municipality. It is expected that each municipality would be responsible for billing end users, thus allowing for local control over the final price to consumers of the service.

Issues:

- **The organization and powers of the Authority would need to be determined.** The scope and powers of the Authority would need to be established, along with who would reside on the Authority and how the voting structure would be determined. It is anticipated the Authority would minimally be responsible for the establishment of a contract with an operator to maintain the entire system. The Authority could also have the authority to plan the future of the system.
- **Commissions may not be necessary under the Authority**. The current role of the regional wastewater commission would be duplicated by the Authority.
- **Uniform (Postage Stamp) versus Cost Based Rates**: As with Option 2, the approach to establishing rates would need to be established. This has been discussed in earlier sections of the report.
- **Fragmented participation**. The willingness of municipalities to participate in this option may be an issue. This may be most acute for municipalities that are currently not a member of the regional system. If a number of municipalities choose not to participate in this option, the potential benefits may be significantly eroded.

Advantages:

- System wide service, including treatment, transmission, storage and local distribution, could result in some improvements in system planning and infrastructure cost savings.

- Some economies of scale in the maintenance and upkeep of the system could be achieved.
- There would be a reduction in local and sub-regional administrative expenses, leading to greater efficiencies.
- There would be a consistently high level of expertise in the provision, planning and maintenance of the system.
- Each municipality would retain ownership and control of its local distribution and storage systems.

Disadvantages:

- The establishment of an equitable rate setting mechanism may take time and will depend upon the approach taken by member municipalities to negotiating a rate structure.
- There will be some loss in local autonomy regarding the determination of local service levels and rates for wastewater. This will be less than under the previous two options (2 & 3) as the local municipalities will retain ownership and control of local infrastructure. The loss of autonomy will result if the Authority has some influence on regional planning of the system.
- There will be one less function area which local government overheads can be shared.
- Not all municipalities in the region would necessarily participate in this option. It has been assumed that those municipalities with stand-alone wastewater operations would continue to operate independently due to economics.

4.2 Evaluation of Service Options

In this section, each of the options have been evaluated against the nine criteria established by the Project Steering Committee. The following rating system has been employed in this analysis:

- **Best**: This is the best option against the criteria.
- **Good**: The option performs well against the criteria.
- **Poor**: Substantive improvements can be made in this area.

For this service area, the evaluation has assumed that each option is mutually exclusive and would include all region municipalities where it is economical to do so.

FIGURE 8: WASTEWATER TREATMENT & TRANSMISSION OPTION EVALUATION

	Option 1	Option 2	Option 3	Option 4
1 Citizens will receive best value for their dollars.	Good	Best	Good	Good
2 Citizens will benefit from service and facility enhancements in the long term.	Good	Good	Good	Good
3 Volunteerism will continue to be supported and encouraged.	N/A			
4 Citizens will know who is responsible for service delivery and concerns.	Good	Best	Best	Good
5 Sustainable benefit to the region will be a priority.	Good	Good	Good	Good
6 Service delivery will be more cost effective after restructuring.	Good	Good	Good	Good
7 No new level of government will be created.	N/A			
8 Community identity will be maintained.	Good	Poor	Poor	Good

Option	Definition
Option 1	Status Quo
Option 2	Sell All Systems to a Private Owner/Operator
Option 3	Equity Investment in a Regional Wastewater Corporation
Option 4	Regional Contract Operator/Wastewater Authority

Evaluation Results:

1. **Citizens will receive best value for their dollars**. It is expected that an improvement in the price/service combination can be achieved in Option 2. These include capturing some additional economies of scale as well as improvements in the planning of future infrastructure. Options 2 &3 will likely have the advantage over Options 1 & 4 in the coordination of infrastructure and service standards. Options 1 & 2 likely have the advantage of pricing

which is more closely cost based, with Option 2 being the best.[49] It is expected that the ROE and other costs associated with the alternatives (Options 2 & 3) are not significant enough to eliminate or exceed the efficiency gains.[50]

2. **Citizens will benefit from service and facility enhancements in the long term**. Service and facility enhancements can be expected in each of the options.

3. **Volunteerism will continue to be supported and encouraged**. This criteria is not considered applicable (N/A) for this service area.

4. **Citizens will know who is responsible for service delivery and concerns**. There are a number of administrative entities with the Status Quo (Option 1) that could lead to confusion regarding who is responsible for the delivery and planning of water services. Options 2 & 3 perform best against this criteria as they simplify the administrative structure

5. **Sustainable benefit to the region will be a priority**. Each of the options provides for continued good delivery of wastewater services to the region in an efficient manner. Each of the options show every opportunity to provide for a sustainable benefit to the region.

6. **Service delivery will be more cost effective after restructuring**. Options 2, 3 & 4 hold the potential for economies of scale by expanding the operations and maintenance service across all systems in the region. Options 2 & 3 have the added advantage of internalizing the planning of future additions to the system however, this is not considered a strong benefit and most transmission and treatment infrastructure in the region is already planned at the regional level to some extent. Finally, Option one has economies of scope advantages over the other where wastewater and storm water services are provided jointly at the municipal level.[51]

7. **No new level of government will be created**. The development of options to the Status Quo has explicitly excluded alternatives that would create a new level of government.

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[49] It is expected that uniform pricing will be more prevalent under Options 3 & 4 where pricing decisions are made "regionally".

[50] ROE is only relevant for Options 2 & 3 and would be incremental for the regional transmission, local distribution and storage only.

[51] It is not clear whether the economies of scale (expanding operations and maintenance of wastewater services regionally) is larger than the lost economies of scope (provision of wastewater and storm services at the municipal level).

8. **Community identity will be maintained**. To the extent that local economic development decisions depend upon this service, the loss in local municipal control could be a concern. The Status Quo (Option 1) and Option 4 are considered to hold the advantage in this area for two reasons: first, local municipalities will control all billing to customers; and second, decisions incremental additions to infrastructure will be in the control of local decisions makers.

5 SOLID WASTE COLLECTION AND DISPOSAL

5.1 Background

Solid waste collection and disposal, as well as recycling programs within the Capital Region are generally offered at the municipal level, however some integration of services and facilities has already been implemented.

The current level of regionalization is summarized in the table below:

FIGURE 8: CURRENT REGIONALIZATION OF SOLID WASTE DISPOSAL AND MINIMIZATION

	Disposal / Treatment	Transport	Collection
Waste Disposal (Landfill/Co-composter)			
Regional	-	-	-
Sub-regional	95%	5%	5%
Local	5%	95%	95%
Total	100%	100%	100%
Waste Minimization (Recycling/Composting)			
Regional	-	1%	1% (eco-stations)
Sub-regional	50%	5%	5%
Local	50%	94%	94%
Total	100%	100%	100%

Solid Waste Collection and Disposal

Solid waste disposal has been integrated on a "subregional" basis primarily at four landfills throughout the Capital Region.[52] In addition, the Ryley (Beaver County) Landfill and Drayton Valley Regional Landfill service some members of the Capital Region's solid waste disposal needs.

[52] These include: Cloverbar Landfill, West Edmonton Landfill, Sturgeon Regional Landfill and Leduc Regional Landfill.

Waste collection is generally carried out at the municipal level, however, some shared contracts between adjacent municipalities are being considered or are currently in place.[53] In addition, some neighbouring municipalities have agreements for sharing solid waste transfer stations.[54]

City of Edmonton - Waste Management Centre

The City of Edmonton has developed a fully integrated Waste Management Centre that is expected to serve the waste needs of Edmontonians for the next several decades. The services and facilities at the Edmonton Waste Management Centre incorporate the concepts of recycling, composting and limited use of landfill facilities.

Currently Edmonton is recycling approximately 15 to 18 per cent of residential solid waste. The remaining residential solid waste is taken to a recently constructed Co-composting Facility. This state-of-the-art facility uses the City's household waste and biosolids (sewage sludge) as resources to create compost, a rich soil supplement. Together with established recycling programs it enables Edmonton to divert 70% of its residential waste from being landfilled; more than any other major Canadian city. The Co-composter operates 7 days a week, 350 days a year, and meets all local, provincial and federal occupational health and safety regulations.

In addition to the Co-composter, Edmonton's Waste Management Centre has recently opened the Materials Recovery Facility (MRF). The MRF is a 64,000 square foot recycling plant for recycling mixed materials. In its first year of operation, the MRF processed approximately 30,000 tonnes of material. This volume is projected to increase to 40,000 tonnes in subsequent years. It processes all types of recyclables that are accepted in the City's various collection programs including newsprint, magazines, office paper, cardboard, boxboard, polycoated milk cartons, rigid plastic containers/items, film plastic, ferrous and aluminum containers, and clear and coloured glass containers.

Waste Minimization

Solid waste diversion rates (including recyclables and compostables) reported throughout the Capital Region range from 20% to 40%.[55] Many neighbouring municipalities share recycling depots and related services.

On a more regional basis, some of the municipalities encourage residents to use the Edmonton Eco-stations for disposal of hazardous household wastes. The

[53] For example, Stony Plain and Spruce Grove.
[54] For example, Fort Saskatchewan and Strathcona County, Redwater and Sturgeon County.
[55] A diversion rate refers to the percentage of residential solid waste generated that is diverted from landfilling by waste minimization initiatives such as recycling and composting.

Eco-stations dispose of a variety of hazardous household materials at no charge.[56] Eco-stations also accept a variety of other household materials that refuse collectors cannot readily collect or safely handle (e.g. couches, hot water tanks, tires, etc.). These materials, as well as loose waste or mixed loads, including yard waste, lumber products and construction waste, are accepted for a nominal fee.

Over the next twenty years, the demand for waste minimization initiatives is expected to increase with less waste being disposed to landfills and more waste being diverted.

Waste Disposal Charges

Most municipalities are currently recovering costs from non-volume based user fees, while a few (usually rural municipalities with a high rural based population) are recovering costs through the tax base. At the other end of the spectrum, the City of St. Albert has implemented volume based user fees.

Waste disposal costs are recovered through user fees in a variety of ways in the Capital Region. In some instances, user fees may cover waste disposal and collection costs, but not recycling costs, or tax revenues may be used to cover future capital costs with user fees covering current operating or maintenance costs. As a result, there is a wide variation in waste disposal and minimization fees in the Capital Region (see Figure 10).

[56] Materials accepted at the Eco-stations currently include residuals arising from the following types of products: cleaning, paint & building, automotive (e.g. batteries, antifreeze, solvents, oil filters, etc.), hobbies and healthcare (e.g. photographic chemicals, nail polish, etc.) lawn and garden (e.g. pesticides, herbicides and fertilizers) and other wastes (e.g. disposable propane/butane cylinders, dry cell batteries, aerosol cans, light bulbs, fire extinguishers, etc.).

FIGURE 10: AVERAGE MONTHLY SOLID WASTE DISPOSAL AND MINIMIZATION FACILITY CHARGES FOR A SINGLE FAMILY HOUSE (MAJOR MUNICIPALITIES)[57]

	1999 (October)	2000 (September)	% Change
Edmonton	$5.00	$8.00	60.0%
St. Albert	$4.50	$7.25	61.1%
Leduc	$10.75	$10.75	0.0%
Ft. Saskatchewan	$8.50	$8.50	0.0%
Devon	$6.61	$6.61	0.0%
Stony Plain	$7.40	$7.40	0.0%
Spruce Grove	$8.00	$8.00	0.0%
Morinville	$5.81	$7.03	21.0%
Beaumont	$7.98	$8.21	2.9%
Leduc County	$0.00	$0.00	
Strathcona County	$10.00	$10.00	0.0%
Average - Unweighted	$6.78	$7.43	

Source: City of Edmonton, 1999 & 2000 Residential Property Taxes & Utility Charges Surveys - http://www.gov.edmonton.ab.ca

5.2 Regional Issues

Waste Disposal Capacity

The most important issue potentially facing the Capital Region is the establishment of additional waste disposal capacity (see Options 2 through 4) in the near future, and other waste minimization and diversion initiatives within the study period. The current waste disposal facilities within the Capital Region will serve the region sufficiently for the next 10 to 15 years. Ongoing waste minimization initiatives are anticipated which will result in ever decreasing annual waste volumes per capita. However, the need for waste disposal will continue over the study period.

In addition to the specific landfill capacity options, the planning and operational issues associated with siting and coordinating landfill capacity in the region could be facilitated by the establishment of a Regional Solid Waste Authority or Commission.

[57] The single family house is defined as being 25 to 30 years of age with a double-car garage.

Regional/Sub-Regional Recycling Facilities & Initiatives

Over time as our population becomes more informed regarding waste generation and diligent about waste reduction, it is expected that the demand for waste minimization, recycling and composting opportunities will increase.

There are a number of recycling facilities and initiatives in the region which are currently run by various municipalities. For example, Spruce Grove, Stony Plain and the County of Parkland share a transfer station, Sturgeon County and Redwater share a transfer station, and Fort Saskatchewan and Strathcona County share a transfer and recycling station. In addition, there are several cases where counties, towns and villages use transfer stations and recycle depots in nearb6 larger urban centres.

There may be an opportunity to expand the effectiveness and efficiency of these facilities through delivering these services on a cost shared basis either regionally or sub-regionally (see Option 5).

Solid Waste Collection

Solid waste collection is increasingly being provided by a single private sector operator in the region. This has created some concern regarding the ability of market forces to ensure that collection costs remain economical. Option 6 outlines an approach to collectively negotiating future collection agreements either regionally or sub-regionally.

Private sector monopolies in the solid waste collection and disposal sectors are becoming an increasing concern for the Capital Region municipalities. Water supply and distribution costs are controlled through the Alberta Energy and Utilities Board (AEUB). A similar type of external control may be required to manage escalating costs for solid waste collection and disposal.

Regional Solid Waste Authority/Commission

Finally, there are a number of potential activities that could be undertaken at a regional or sub-regional level. This could be accomplished through the creation of a Regional Solid Waste Authority (see Option 7). Similarly, the regions solid waste facilities could be transferred to a Commission at either a regional or sub-regional level (see Option 8).

5.3 Service Integration Options

The options for Solid Waste Collection & Disposal cover a wider range of issues than that presented for Water and Wastewater. As a result, the evaluation of options for this service area has been divided into two groups as follows:

- **Disposal Capacity** – Options 2, 3 & 4
- **Regional Planning/Coordination** – Options 5, 6, 7 & 8

Each of the options are summarized below.

1. Status Quo
2. Disposal to existing landfill(s) outside of the Capital Region;
3. Site a new regional landfill within the Capital Region;
4. Increased waste disposal at the co-composter;
5. Regionalization of recycle depots/compost facilities/eco-stations;
6. Collective negotiation of waste collection agreements;
7. Regional Solid Waste Authority.
8. Sub-regional Solid Waste Commission

It should be noted that the options in this category are not mutually exclusive (i.e. they could all be pursued and implemented to some degree).

Option 1: Status Quo

Description of the option:

- Solid waste disposal in the Capital Region generally consists of landfilling of wastes. Most municipalities in the Capital Region have incorporated waste minimization initiatives in their solid waste disposal program, both to reduce the amount of waste taken to landfills thus extending the life of the landfill and to address public demands for recycling opportunities.
- In a significant departure from the historical approach to disposing of solid waste, the City of Edmonton developed a $100 million integrated Waste Management Centre. This facility is expected to significantly reduce the volume of waste material generated from Edmonton that is ultimately sent to a landfill.
- Residential waste collection services are typically provided in urban areas where population density is sufficient for the cost of the service to be reasonable for the residents. Waste collection for the Industrial, Commercial and Institutional sectors is provided by privately owned companies.
- Recyclable materials are generally collected on a municipal basis at a central depot(s). Typically the recyclable materials are taken to the depots by the public on a volunteer basis. Curbside collection of recyclables is provided in the City of Edmonton, and on a limited basis (typically newspapers and/or yard waste) in some of the other municipalities.

- Compost facilities are also provided within a number of the municipalities.[58]
- Household hazardous waste and other wastes and recyclable materials are collected at the two Eco-stations in Edmonton.
- Many of the municipalities offer additional services such as toxic waste round ups, large item pick up, yard waste collection and Christmas tree pick-up.

Issues:

- The status quo in solid waste in the Capital Region is evolving. Municipalities are continually assessing their options based on cost concerns and public demands.
- The Capital Region municipalities operate individually or on a sub-regional basis with their neighbours to economize on facilities and services offered.
- Ongoing landfill needs continue to be an issue for the municipalities on either a long-term or short term basis.
- Utilization of Edmonton's Waste Management Centre facilities will be severely limited due to the relative cost differential with conventional services.
- Increased demands for recycling and composting facilities are expected with each new generation.

Advantages:

- By operating independently or on a sub-regional basis, municipalities can offer a service customized to their residents and their unique needs. This can lead to a high degree of cooperation and voluntary action.

Disadvantages:

- Services and facilities offered by the municipalities may not be as cost effective as a regionally based system, in terms of disposal, collection and waste minimization options.
- More advanced, "high tech" options may be available on a regional basis, where more expertise is available and economies of scale can be captured.

[58] Compost facilities are provided in St. Albert and Fort Saskatchewan where compost produced is available back to the resident in Redwater and Strathcona County. Yard waste is accepted at the transfer station in Stony Plain, the two landfills in Parkland County, at a compost site and landfill in Devon, at a compost site in Legal, and at a recycle depot in Morinville.

- Ad hoc approach to recycling and waste minimization may not maximize the potential of these strategies. A lack of coordinating the location and operation of facilities and services will lead to inefficiencies.

Option 2: Disposal to existing landfill(s) outside of the Capital Region

Description of the option:

- Existing landfills located outside of the Capital Region are considered as key disposal sites. The most realistic option is likely the Ryley landfill, as it has substantial capacity over the long-term and is located about 70 km east of the Capital Region. Drayton Valley Regional Landfill may also be a viable option.
- The Ryley Landfill has a total remaining capacity of about 43 million tonnes, and currently takes in 125,000 to 175,000 tonnes/ year. The projected remaining life on the Ryley landfill exceeds 60 years.
- There may be waste acceptance restrictions (in terms of non-county waste) for the Ryley Landfill stipulated on the Approval from Alberta Environment.
- Increased hauling efficiencies from the Capital Region to the Ryley Landfill can be obtained through the use of transfer stations such as exists in Strathcona County.

Issues:

- Requires negotiation with the landfill operators to establish a long-term disposal contract. Cost of both disposal at the site and transportation of waste to the site are key issues. Current tipping fees for municipal solid waste (MSW) range from $25/ tonne at Cloverbar landfill and $30/ tonne at West Edmonton landfill, to $40/ tonne for non-county residents at Ryley landfill. At Leduc Regional and Sturgeon Regional landfills, there is no charge to residents of member municipalities, and MSW from non-member residents is not accepted. Obviously contract rates based on minimum tonnage over a set time period would generally be less than these posted gate rates.

  At the Co-composter, the tipping fee is $62.70/ tonne for MSW and $188/ dry tonne for sewage sludge. In comparison, the tipping fee for MSW in the Greater Vancouver Regional District (GVRD) ranges from $65 to $69/ tonne.
- The use of existing and/or new transfer stations within the Capital Region for short term waste disposal, and regionalized transportation would be

required to make this option economically feasible for the municipalities within the Capital Region.

Advantages:

- A long-term contract would stabilize the cost of services.
- There may be no need to site a new landfill (or landfills) or other disposal facilities within the Capital Region.

Disadvantages:

- Higher transportation costs would be incurred particularly for those municipalities located farther from the landfill.
- There may be local opposition to a landfill outside of the Capital Region accepting significant quantities of waste from the Capital Region (ie. Beaver County residents may oppose Ryley Landfill taking Capital Region waste).
- There may be restrictions in the approval necessary to operate from Alberta Environment.

Option 3: New landfill(s) within the Capital Region

Description of the option:

- New regional landfill(s) would be sited within the Capital Region. Because of the difficulty in siting a landfill, it may be most practical to consider a single facility. However, from an operational efficiency perspective, siting several "sub-regional" facilities could result in significant savings in transportation costs.
- This would complement the landfill capacity at Ryley with a site in the west, south or northwest part of the Capital Region, in order to reduce transportation costs for Capital Region residents.

Issues:

- The location and size of the landfill would need to consider both the short and long-term needs of the region.
- Siting the landfill will likely be extremely difficult. A commitment at the provincial level through Alberta Environment and on the part of the Capital Region Municipalities would be necessary to ensure this process was successful.
- Timing constraints based on both siting issues and the regulator approval process would likely exceed five to ten years from initiation until the site is ready to operate. As a result, this process would need to commence within

5 years to ensure that the capacity is available at its earliest possible need.

Advantages:

- Capital costs and environmental liabilities would likely be less for a single site than for multiple sites.
- Siting landfill capacity strategically in the region would reduce transportation costs and provide greater cost efficiencies over more remote locations.
- Public concerns regarding the landfill operation would be confined to the Capital Region.

Disadvantages:

- It will likely be difficult to site a landfill that would take waste from outside the municipality, even if it was from other municipalities in the Capital Region. A Regional Solid Waste Authority may be effective in assisting this process (see option 6).
- Transportation costs would be higher for municipalities located farther from the site, but lower overall as compared to hauling to a site outside the Capital Region.

Option 4: Edmonton Co-Composter Use and Expansion

Description of the option:

- Waste from the region, outside of Edmonton, would be directed to the Co-composter. At this time, only waste from Edmonton is sent to the Co-composter. During peak periods (summer months), it is reported that the existing facility is operating at capacity. As a result, any significant diversion of waste from other municipalities in the region to the co-composter would require an expansion of the existing facility, or more likely, the development of a similar facility elsewhere in the region. The location of the facility should be considered strategically to minimize transportation costs (e.g. West or Southwest area of the Capital Region would be considered). Over the longer term, if waste from outside Edmonton is not sent to the Co-composter, Edmonton will likely need to develop a new facility to handle its own waste volumes.
- The Co-composter converts municipal solid waste and sewage sludge (biosolids) into a rich soil amendment. About 60 to 65% of household waste is organic and suitable for composting. Non-organic, oversized items such as furniture, mattresses, tires and batteries are removed on the tipping floor.

- Currently, the tipping floor receives about 700 tonnes of solid waste each day (peak of 1500 tonnes in the summer). The solid waste and dewatered biosolids are mixed together, broken down and screened to remove non-compostable materials (such as metals, glass and plastics). An average of 500 tonnes of compost can be produced each day.
- Currently about 1,100 tonnes of waste is received at the facility each day, which represents a diversion rate of about 27%. The facility has the potential to divert up to 55% of the residential waste from the landfill.

Issues:

- The co-composter is a new facility with state-of-the-art but unproven emerging technology, and there may be technological issues and improvements that may require additional costs.
- The tipping fee at the Co-composter is currently $62.70/ tonne for MSW and $188/ dry tonne for sewage sludge. This is significantly higher than current solid waste disposal costs incurred by municipalities in the Capital Region.
- Environmental regulations may result in increasing landfill costs that could, over time, make the Co-composter a more economically viable option.

Advantages:

- The co-composter could be a major facility in terms of waste minimization in the Capital Region. Combined with the Materials Recovery Facility (MRF), it has the potential to exceed the target of diverting 55% of waste from landfills (up to 70% diversion may be realized).
- It provides a long-term environmentally friendly disposal solution for two waste streams; municipal solid waste and sewage biosolids.
- Less waste is sent to the landfills, extending the life of the landfills and reducing the amount of methane gas produced, thus reducing greenhouse gas emissions and other potential environmental issues with landfills.
- Over the long-term, it may be able to provide a product (i.e. compost material) back to the municipalities or residents.

Disadvantages:

- The current tipping fees are too high for the member municipalities to consider it as an economically viable disposal option.
- Any significant utilization of the Co-composter by other Capital Region municipalities will require additional capacity (especially during peak periods).

Option 5: Regionalization of recycle depots/compost facilities/eco-stations

Description of the option:

- Recycle depots are located in urban centres and at landfills. Some additional formalized "sharing of facilities" could be implemented on a regional or sub-regional basis in order that costs and revenues are shared between neighbouring municipalities.
- A waste minimization opportunity that may be feasible on the regional or sub-regional basis is with the Eco-stations in Edmonton for collection of household hazardous waste. To date, Edmonton receives provincial financial support for treatment and processing of household hazardous wastes collected at the Eco-stations, and some provincial support was received for capital costs for one of the Eco-stations. It is acknowledged that residents outside Edmonton utilize these facilities at no cost to the other municipalities in the region.
- Some coordination of facility development and cost sharing associated with these facilities and services could both improve the collection of related materials, reduce the cost of the services and related infrastructure, and more fairly allocate these costs across the region.

Issues:

- Waste minimization initiatives are primarily volunteer based (i.e. residents typically take their recyclable materials to depots on their own initiative). Consequently, these facilities and services need to continue to be provided at the municipal level in order to be convenient to the residents.
- Changing legislation and awareness of the importance of waste minimization could increase the demand for recycling and safe disposal opportunities for residents. As a result, the demand for these types of facilities can be expected to increase over the analysis period.
- The volume of hazardous wastes generated by households is generally small enough that they can be stored on a short term basis prior to disposal. Thus convenience of disposal facilities is less critical than with recycled materials. The Eco-stations operated by the City of Edmonton are available for use by the Capital Region municipalities at no differential rates (ie. same rates as Edmonton citizens). This may change if provincial support is withdrawn.

Advantages:

- Existing recycle depots have been sited in many instances to be convenient for residents in terms of location and hours. Sharing of recycle depots and composting facilities by neighbouring urban and rural municipalities provides some efficiencies of scale, as well as opportunities for cost and revenue sharing.
- Having access to Eco-stations means that residents can dispose of their household hazardous wastes at any time of the year, rather than gathering them for a yearly "toxic waste" event.
- Sharing the costs of these facilities will recognize the regional nature of the voluntary recycling activities and allow for a higher level of service to be provided at locations that are convenient. This should have the additional benefit of encouraging their use.
- There may be economies associated with the joint promotion of related services and facilities in the region.

Disadvantages:

- Determining the appropriate cost sharing formula would require some analysis and negotiation.

Option 6: Collective negotiation of waste collection agreements

Description of the option:

- The negotiation of combined collection and disposal services on a regional or sub-regional basis may help to balance the power of a large regional service provider. The key advantage of a collective approach to negotiation will be the sharing of information and an ability to identify realistic alternatives to the major supplier.
- A collective approach to bargaining could result in the establishment of a greater public presence in the collection and disposal of waste in the absence of sufficient competition in market place. Even the threat of municipally provided services may force a greater degree of competitive bidding for contracts. The threat of municipally provided services is likely greater where a number of municipalities are involved and can have the ability to capture sufficient economies of scale to make the operation feasible.

Issues:

- With one service provider and individually negotiated contracts higher costs may be incurred by the municipality. Unless there are realistic private sector options or the threat of an efficient public service, the service

provider with a high level of market power could demand high prices for collection services.

Advantages:

- A collectively negotiated agreement can address and respond to unique collection requirements of each municipality.
- Collection costs could be reduced for those municipalities participating in the collective negotiating process.

Disadvantages:

- Some municipalities may need to compromise on issues like length of contract and level of service for areas with unique service delivery needs.

Option 7: Regional Solid Waste Authority

Description of the option:

- Regionalization has already occurred and is working well in the form of the Capital Region Waste Minimization Advisory Committee (CRWMAC). Most of the Capital Region member municipalities are members of CRWMAC. The CRWMAC is an excellent example of a voluntary organization that impacts waste minimization initiatives.
- This option involves the creation of a Regional Solid Waste Authority. This could be the result of creating a new organization, or expanding the mandate and altering the membership of CRWMAC to give the organization more authority to address landfill capacity issues within the Capital Region and implement solutions on a regional basis.
- The specific activities that could be undertaken by this organization include: tracking landfill capacity and planning for additional capacity as required; tracking waste minimization activities in the region (as these also impact landfill capacity requirements) and co-ordinate the planning of specialized regional and sub-regional services (e.g. eco-stations, recycling stations); assist or take the lead in collectively negotiating waste collection contracts; and collect and provide information on solid waste and waste minimization opportunities in the region (as the CRWMAC does now).

Issues:

- Provincial support and backing (both financially and technically/ environmentally) will be essential in order that the Authority has the power and ability to lead the initiatives indicated and to implement regionally based solutions.

- The willingness of municipalities to participate in this option may be an issue. If a number of municipalities choose not to participate in this option, the potential benefits would be significantly eroded.

Advantages:

- Member municipalities would have a voice in long-term waste management issues including landfill life, capacity and citing issues.
- Planning, siting and co-ordination of regional and sub-regional facilities could result in greater minimization of waste streams and reduced costs associated with these activities.

Disadvantages:

- Some loss of autonomy would occur at the municipal level to achieve regional and sub-regional goals and needs.
- There would likely be a cost associated with the activities of the Authority.[59]

Option 8: Sub-Regional Solid Waste Commission

Description of the option:

- This option involves the creation of one or more sub-regional Solid Waste Commissions whose mandate would be to address waste disposal options, landfilling and waste minimization initiatives in recycling and composting.
- These commissions could be developed from the existing regional landfill authorities with an increase of scope and authority. The commissions could own property and potentially reduce their environmental liabilities.

Issues:

- Provincial support and backing (both financially and technically/ environmentally) will be essential in order that the Authority has the power and ability to lead the initiatives indicated and to implement regionally based solutions.
- The willingness of municipalities in the sub-region to participate in this option may be an issue. If a number of municipalities choose not to participate in this option, the potential benefits would be significantly eroded.

[59] Currently the activities of the CRWMAC are done voluntarily with some minor costs (printing, photocopying, ec.) picked up by some of the member municipalities.

Advantages:

- Member municipalities would have a voice in long-term waste management issues including landfill life, capacity and citing issues.
- Planning, siting and co-ordination of sub-regional facilities could result in greater minimization of waste streams and reduced costs associated with these activities.
- A sub-regional commission would have the advantage of achieving economies of scale that individual municipalities may not be able to achieve, while at the same time addressing the unique needs and wishes of the sub-region.

Disadvantages:

- Some loss of autonomy would occur at the municipal level to achieve sub-regional goals and needs.
- There would likely be a cost associated with the activities of the Authority.

5.4 Evaluation of Service Options

In this section, each of the options have been evaluated against the nine criteria established by the Project Steering Committee. The following rating system has been employed in this analysis:

- **Best**: This is the best option against the criteria.
- **Good**: The option performs well against the criteria.
- **Poor**: Substantive improvements can be made in this area.

The options for Solid Waste Collection & Disposal cover a wider range of issues than that presented for Water and Wastewater. As a result, the evaluation of options for this service area has been divided into two groups as follows:

- **Disposal Capacity** – Options 2, 3 & 4
- **Regional Planning/Coordination** – Options 5, 6, 7 & 8

In reviewing the evaluation of the Solid Waste options, the rating of each option is done in comparison to the other within the two groups. In each instance, the Status Quo (Option 1) is included.

FIGURE 11: SOLID WASTE COLLECTION & DISPOSAL OPTION EVALUATION

	Option							
	1	2	3	4	5	6	7	8
		Disposal Capacity			Regional Planning/Coordination			
1 Citizens will receive best value for their dollars.	Good	Good	Best	Good	Best	Best	Best	Good
2 Citizens will benefit from service and facility enhancements in the long term.	Good	Good	Good	Good	Best	Best	Best	Good
3 Volunteerism will continue to be supported and encouraged.	Good	Good	Good	Good	Good	N/A	Best	Good
4 Citizens will know who is responsible for service delivery and concerns.	Good	Good	Good	Good	Good	Good	Best	Good
5 Sustainable benefit to the region will be a priority.	Good	Good	Good	Good	Good	Best	Best	Good
6 Service delivery will be more cost effective after restructuring.	Good	Good	Best	Good	Good	Good	Good	Good
7 No new level of government will be created.	N/A							
8 Community identity will be maintained.	Good	Good	Good	Good	Good	Good	Good	Good

Option	Definition
Option 1	Status Quo
Option 2	Disposal to existing landfill(s) outside the Capital Region
Option 3	Site a new regional landfill(s) within the Capital Region
Option 4	Increased waste disposal at the Co-Composter
Option 5	Regionalization of recycle depots/compost/Eco-Stations
Option 6	Collective negotiation of waste collection agreements
Option 7	Regional Solid Waste Authority
Option 8	Sub-Regional Solid Waste Commission

Disposal Capacity

1. **Citizens will receive best value for their dollars.** Siting a new landfill (or landfills) in the Capital Region will reduce the overall system cost, primarily due

to a reduction in length of haul and the associated transportation costs. In the near future, each of the landfill options is expected to represent a lower total cost to residents than the Co-composter expansion option, although this may not remain so throughout the study period if landfill capacity becomes limited and disposal cost increase accordingly.

2. **Citizens will benefit from service and facility enhancements in the long term**. Each of the options represents an effective service delivery option for citizens of the region over the long term.

3. **Volunteerism will continue to be supported and encouraged**. Each of the alternatives will continue to both require and encourage volunteer activities on the part of citizens and corporations in the region.

4. **Citizens will know who is responsible for service delivery and concerns**. Each of the options provides for a reasonable understanding of who is providing services at the local level.

5. **Sustainable benefit to the region will be a priority**. Each of the options provides for continued delivery of solid waste disposal services to the region in an efficient manner. Each of the options show every opportunity to provide for a sustainable benefit to the region.

6. **Service delivery will be more cost effective after restructuring**. Siting a new landfill (or landfills) in the Capital Region will reduce the overall system cost, primarily due to a reduction in length of haul and the associated transportation costs. As with criteria one, in the near future, each of the landfill options is expected to represent a lower total cost to residents than the Co-composter expansion option, although this may not remain so throughout the study period if landfill capacity becomes limited and disposal cost increase accordingly.

7. **No new level of government will be created**. The development of options to the Status Quo has explicitly excluded alternatives that would create a new level of government.

8. **Community identity will be maintained**. Each of the options provides for the maintenance of local community identity.

Regional Planning/Coordination

1. **Citizens will receive best value for their dollars**. As each of the options represents an improvement in coordinating regional solid waste disposal and minimization services, they can be expected to provide an improvement over the Status Quo (Option 1) in providing value for service.

2. **Citizens will benefit from service and facility enhancements in the long term**. Each of the options represents an improvement over the Status Quo in regional planning of waste disposal and minimization services and facilities. The creation of a Regional Solid Waste Authority is perhaps the most effective way in meeting this challenge as it can incorporate the concepts of Options 5 & 6 as well as provide a forum for pursuing the preferred Disposal Capacity option.

3. **Volunteerism will continue to be supported and encouraged**. Only Option 7 (Regional Solid Waste Authority) represents an opportunity for improvement in generating additional volunteerism in this area. It is anticipated that an elevation of the CRWMAC to Authority status will both increase the profile and importance of citizen participation and increasing responsibility for solid waste disposal.

4. **Citizens will know who is responsible for service delivery and concerns**. It is expected that the creation of a Regional Solid Waste Authority would elevate the profile of solid waste issues and the responsibility of the Authority for managing these in the region.

5. **Sustainable benefit to the region will be a priority**. Both Option 6 (Collective negotiation of waste collection agreements) and Option 7 (Regional Solid Waste Authority) will improve the prospects for long term benefits to the region. Option 6 provides additional insurance that the costs of a major component of the solid waste system (collection) can be effectively controlled in an environment of increasingly less competition in the collection services industry. Option 7 offers an opportunity for regional planning of solid waste disposal and minimization services and infrastructure, which will help to ensure effectiveness and efficiency in service delivery.

6. **Service delivery will be more cost effective after restructuring**. It is expected that each of the options will perform well in maintaining an efficient delivery of services.

7. **No new level of government will be created**. The development of options to the Status Quo has explicitly excluded alternatives that would create a new level of government.

8. **Community identity will be maintained**. Each of the options provides for the maintenance of local community identity.

6 OTHER OPTIONS

Two other service integration options have been included in the analysis for consideration. Each of these includes the integration and consolidation of more than one service area.

6.1 Combine Wastewater & Storm Water

For many municipalities, the sanitary and storm sewer services are provided jointly, or utilize some common facilities and equipment. The prospect of moving wastewater outside the municipality creates the prospect of increased unit costs in providing storm water services through the loss of economies of scope.

For this reason, as well as the link between the wastewater and storm water storage and transmission issues for most municipalities, it would appear prudent to consider similar options for integration of both service areas. As a result, storm water could be included in each of the integration options considered for wastewater. Because storm water services were not explicitly included as a service area to be considered in the study, it has not been formally evaluated.

The City of Edmonton has publicly contemplated the possibility of a storm water utility. Storm water management helps to prevent flooding, enhance the quality of runoff water and help improve the environment. Currently in Edmonton, and throughout the Capital Region, the operation, upgrade and rehabilitation of storm water management is funded from general revenues. Edmonton presented a proposal to fund storm water management through monthly user fees. The creation of a storm water utility, and combining storm water management with the wastewater options identified in Section 4 of the report, would reduce an inefficiency potentially created by separating the wastewater function from the municipal operations of many municipalities – that being a loss of economies of scope and, to a lesser degree, the potential to allocate administrative overheads across a number of function areas. Embracing the concept of a storm water utility would reduce some practical and financing barriers to introducing storm water into the regional service integration options for wastewater.

6.2 Combining Water/Wastewater & Storm Water

Combining the three service areas of water, wastewater and storm water in each of the options considered was suggested in a number of discussions throughout the study. This would involve combining the three service areas in some combination that would allow for the new service to capture some additional economies of scope that would be lost as a result of extracting this function from existing municipal operations.

It is recognized that there is some potential for this option and it would appear prudent for further consideration. As above, because storm water services were not explicitly included as a service area to be considered in the study, it has not been formally evaluated.

APPENDIX A: INFORMATION REQUEST

APPLICATIONS
Management Consulting Ltd.
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e-mail: applmgt@telusplanet.net
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Subject: Regional Service Integration Study: Questionnaire

We have been retained by the Alberta Capital Region Governance Review Committee to study and evaluate the opportunities for greater integration of three service areas: water treatment & transmission; wastewater collection & treatment; and, solid waste management (including recycling). We are pleased to be working on this project with Stantec, who will be providing technical analysis and expertise.

The first phase of our work involves a comprehensive and consistent understanding of the current service delivery system in each service area for all municipalities in the Capital Region, some ideas regarding how greater integration of service delivery could (or could not) address issues and problems which either exist, or are foreseen to emerge over both the short and long term.

The attached questionnaire has been developed to assist us in collecting information about the current service delivery system and issues associated with the possibility for greater regional service delivery. It is our intention to meet with you to discuss the answers to these questions, and we will be contacting you shortly to arrange a convenient time for meeting. In the mean time, if there is information which you could provide to us in advance of the meeting, it would be appreciated.

In addition, there is a list of reports attached to the questionnaire, of which we would like to obtain a copy. If you have any of these reports, or other reports which you believe would be helpful in the study, please let me know.

We are scheduled to complete this phase of work, including compiling and report on the results of the questionnaire, by the end of June. Your assistance in helping us meet this timeline is appreciated.

If you have any questions regarding the project objectives or schedule, please feel free to call me. If you have questions about questionnaire, please refer to the contacts below:

Water / Wastewater	David Yue 917-7099 (Stantec)
	Todd Wyman 917-7111 (Stantec)
Solid Waste / Recycling	Gloria Gerber 917-7251 (Stantec)

Sincerely,

Applications Management Consulting Ltd.
Per:

Darryl Howery

Darryl Howery
Principal

Attachment

Stantec

Municipal Survey

Solid Waste Management

1. Please provide a description of your current solid waste management facilities and services. **Facilities** should include all landfills (non-hazardous hazardous wastes, dry wastes), transfer stations, recycle depots, compost facilities, eco-centres/ household hazardous waste collection depots, etc. **Services** should include waste collection, collection of recyclable materials, toxic waste round ups, etc.
2. Are there significant assets (facilities or services) that are owned or provided by privately owned or third partied? If so, please describe.
3. What percentage of your population is serviced in terms of waste management? What is the level of service? (Note the level of service may vary within a municipality, for example between urban and rural residents.)
4. Please provide historical and current information on users of the solid waste systems. i.e. Who are the users (e.g. residences / households, commercial properties)? How many users are there (by type of user)? Please provide a list of services provided to each user group (ie. single family residential, multi-family, commercial, urban, rural, etc. as appropriate).
5. Are there large customers within your municipality that have special needs? What kind of customers are these and what is the nature of their special needs? Please describe.
6. Please provide historical and current information on solid waste volumes by user group. How have volumes (demand) changed? What proportion of wastes is diverted to recycling?
7. Please provide a general description of your organization chart with respect to waste management? Include both public employees and private owners.
8. Do you have a municipal standard/ bylaws that pertain to solid waste management? If yes, please provide a copy.
9. What is the status of your permit to operate with Alberta Environment (for landfills, transfer stations, etc.)? Are there any issues/ deficiencies to be resolved? Is there communication on future direction/ areas of improvement with the Province?
10. Does the municipality have any inter-municipal agreements with other municipalities to provide solid waste services? If so, please provide the details of the agreement.
11. What is working well for the municipality in terms of waste management? What is not working well?
12. What are your short term and long term plans for waste management? Do you have a waste management plan in place? Are waste minimization goals addressed in this plan? Please provide a copy of relevant documents where these issues are addressed.

13. What are your short term and long term issues and goals with respect to solid waste management services and facilities? Consider issues such as assets, operations, capacity and estimated life of facilities, service expectations. What is the capacity of the existing systems? Is the municipality operating below or near capacity? When will additional capacity be required? When will existing assets need to be replaced?
14. What are the key waste management issues for the general public (short term and long term)? For the municipality? (short term and long term)?
15. Are there any elements of solid waste management plans with your neighbouring municipalities that concern you (short term and long term)? Are there any elements with your neighbouring municipalities that you like (short term and long term)? Consider both facilities and services.
16. What are your thoughts with respect to local landfill facilities and future options? Would a private company monopoly concern you?
17. Does current or future technology provide options to reduce waste generation rates? Please discuss.
18. Please provide your thoughts on how solid waste services could be integrated in the Alberta Capital Region? What are the benefits? Issues? Consider both short-term and long-term alternatives.
19. Please provide a copy of detailed revenue and expenditure reports (by line item) in regards to the provision of solid waste services in the municipality. Both current and historical information (back to 1996 where possible), current budget information and any projections of capital projects / expenditures for solid waste services (e.g. new projects, lifecycle costs), along with timing and funding assumptions would be useful.
20. Please provide a breakdown of cost recovery by the following categories: user fees, grants, general municipal revenues (tax base), reserves, and other. What is the fee and what does it cover? Does it cover operating costs, capital costs including future capital costs? If not, where does the balance come from? Have any changes to the current fee structure been contemplated? If so, what are these possible changes and why are they seen as necessary?
21. Do you qualify for Provincial funding for waste management projects? What is covered and to what percentage?
22. Are there any other comments you would like to provide?

Please provide relevant reports, as well as a municipal map (digital preferred) indicating locations of facilities.

Water Treatment and Transmission

1. Do you have self contained water treatment and transmission systems? If yes, please provide a brief description of your asset for the water utilities?
2. What is the current population in your municipality and what percentage of this is serviced? Please provide us with a copy of your future service population projections. Please provide historical and current information on users of the water systems. i.e. Who are the users (e.g. residences / households, commercial properties)? How many users are there (by type of user)? Please provide a list of the services provided to each user group (e.g. single family residential, multi family, commercial, urban rural, etc. – as appropriate)
3. Are there large customers within your corporate boundary? Do they have special needs? What kind of customers are these and what is the nature of their special needs – please describe.
4. Do you have a municipal engineering standard / bylaws? If yes, please provide a copy. What is your current intended levels of service for the water utility?
5. What is the status of your permit to operate with Alberta Environment? Are there un-resolved issues/system deficiencies? Are there communication on future direction/areas of improvement with the Province?
6. Do you have short and long term master plans for your water utility? If yes, please provide a copy of the technical documentation.
7. What are your rehabilitation/renewal/replacement needs or desires?
8. Are there significant water assets privately owned or controlled by a third party? If yes, please provide a description of these and your relationship with them.
9. How do you currently operate the water utility, and do you have any major components that are contracted out?
10. Do you offer (or receive) water treatment / transmission related construction/maintenance services which you receive compensation (or pay) for from other municipalities or customers?
11. What is the rate that you charge for water? Does your rate cover both expansion and system maintenance? Are there different rates for different users? If so, please describe.
12. How do you collect for and fund the construction of major capital (that is not fully funded by the utility rate)?
13. What is your development levy's definition and how much is it for the water component?
14. Do you qualify for Provincial funding for major water projects and what percentage is this?

15. Does the municipality have any inter-municipal agreements with other municipalities for delivering this service? Are there areas which you see existing inter-municipal cooperation that is working and, do you have suggestions for further efficiency enhancement?
16. What are the key water issues for the general public (short term and long term)? For the municipality? (short term and long term)?
17. Are there any elements of water management plans with your neighbouring municipalities that concern you (short term and long term)? Are there any elements with your neighbouring municipalities that you like (short term and long term)? Consider both facilities and services.
18. Does current or future technology provide options to reduce water generation rates? Please discuss.
19. Please provide your thoughts on how water services could be integrated in the Alberta Capital Region? What are the benefits? Issues? Consider both short-term and long-term alternatives.
20. Please provide a general description of your organization chart with respect to this service area.
21. Please provide historical and current information on volumes by user group.
22. Please provide a copy of detailed revenue and expenditure reports (by line item) in regards to the provision of water services in the municipality. Both current and historical information (back to 1996 Where possible), any current budget information and any projections of capital projects / expenditures for water services (e.g. new projects, lifecycle costs, etc.), along with timing and funding assumptions would be useful.
23. Any other comments you would like to provide?

Please provide relevant reports, as well as a municipal map (digital preferred) indicating locations of facilities.

Wastewater Collection and Treatment

1. Do you have self contained wastewater collection and treatment systems? If yes, please provide a brief description of your asset for the utilities.
2. What is the current population in your municipality and what percentage of this is serviced? Please provide us with your future service population projections. Please provide historical and current information on users of the wastewater systems. i.e. Who are the users (e.g. residences / households, commercial properties)? How many users are there (by type of user)? Please provide a list of the services provided to each user group (e.g. single family residential, multi family, commercial, urban rural, etc. – as appropriate)
3. Are there large customers within your corporate boundary? Do they have special needs? What kind of customers are these and what is the nature of their special needs – please describe.
4. Do you have a municipal engineering standard / bylaws? If yes, please provide a copy. What is your current intended levels of service for wastewater?
5. What is the status of your permit to operate with Alberta Environment? Are there un-resolved issues/system deficiencies? Are there communication on future direction/areas of improvement with the Province?
6. Do you have short and long term master plans for your wastewater utility? If yes, please provide a copy of the technical documentation.
7. What are your rehabilitation/renewal/replacement needs or desires?
8. Are there significant wastewater assets privately owned or controlled by a third party? If yes, please provide a description of these and your relationship with them.
9. How do you currently operate the water and wastewater utility, and do you have any major components that are contracted out?
10. Do you offer (or receive) wastewater related construction/maintenance services which you receive compensation (or pay) for from other municipalities or customers?
11. What is the rate that you charge for wastewater collection and treatment? Does your rate cover both expansion and system maintenance? Are there different rates for different users? If so, please describe.
12. How do you collect for and fund the construction of major capital (that is not fully funded by the utility rate)?
13. What is your development levy's definition and how much is it for the wastewater component?
14. Do you qualify for Provincial funding for major wastewater projects and what percentage is this?
15. Does the municipality have any inter-municipal agreements with other municipalities

for delivering this service? Are there areas which you see existing inter-municipal cooperation that is working and, do you have suggestions for further efficiency enhancement?

16. What are the key wastewater issues for the general public (short term and long term)? For the municipality? (short term and long term)?
17. Are there any elements of wastewater management plans with your neighbouring municipalities that concern you (short term and long term)? Are there any elements with your neighbouring municipalities that you like (short term and long term)? Consider both facilities and services.
18. Does current or future technology provide options to reduce wastewater generation rates? Please discuss.
19. Please provide your thoughts on how wastewater services could be integrated in the Alberta Capital Region? What are the benefits? Issues? Consider both short-term and long-term alternatives.
20. Please provide a general description of your organization chart with respect to this service area.
21. Please provide historical and current information on volumes by user group.
22. Please provide a copy of detailed revenue and expenditure reports (by line item) in regards to the provision of waste water services in the municipality. Both current and historical information (back to 1996 Where possible), any current budget information and any projections of capital projects / expenditures for waste water services (e.g. new projects, lifecycle costs, etc.), along with timing and funding assumptions would be useful.
23. Any other comments you would like to provide?

Please provide relevant reports, as well as a municipal map (digital preferred) indicating locations of facilities.

Reports

The following is a short list of known reports in the region.

Solid Waste:
EIA document for Edmonton Waste Management and Recycle Facility. done for the City of Edmonton by Stantec.
EIA document for West Edmonton Landfill and Recycle Facility. done for WMI Waste Management of North America Inc. by Golder with some components by Stanley.
EIA document for the Ryley facility.
EIA document for Cloverbar Landfill in their recent vertical expansion application.

Wastewater:
City of Edmonton's CSO short term control plan
City of Edmonton's CSO long term control plan
City of Edmonton's Sanitary Servicing Strategy 2000 (we have a copy)
City of St. Albert's Sanitary Infrastructure Study (we have a copy)
Plant Upgrade Program for the Capital Region Wastewater Commission (we have the initial document done in 1995, need updates)
System Assessment documents for the Capital Region Wastewater Commission.
City of Leduc Infrastructure Master Plan

Water System:
Strathcona County Water System Master Plan
City of St. Albert's Water Supply Study (we have a copy)